8-5-2021

Quality Assurance Report for Year 2020 Estuarine Water Quality Datasonde Monitoring

Lara Martin
University of New Hampshire

Quality Assurance Report for Year 2020 Estuarine Water Quality Datasonde Monitoring

Prepared by Lara Martin, University of New Hampshire (UNH), Jackson Estuarine Laboratory (JEL)

Background:
This project is coordinated by the Piscataqua Region Estuaries Partnership (PREP), which is part of the U.S. Environmental Protection Agency's (EPA) National Estuary Program, a joint local/state/federal program established under the Clean Water Act with the goal of protecting and enhancing nationally significant estuarine resources. PREP receives funding from the EPA as well as state, regional and municipal partners. PREP is administered by the University of New Hampshire (UNH).

Actual funding for this work comes from many sources, including: Great Bay National Estuarine Research Reserve (GBNERR), a partnership between NH Fish & Game and NOAA; EPA; NH Department of Environmental Services (NHDES); and municipalities in the Piscataqua Region Watershed.

Purpose:
To document the quality assurance checks and decisions regarding water quality measurements from datasondes deployed in the Great Bay Estuary and the Hampton-Seabrook Estuary in 2020. This document focuses on datasonde (automated independent dataloggers) measurements only. Datasonde parameters include temperature, specific conductance (salinity), dissolved oxygen (percent saturation and mg/L), turbidity, depth, pH, chlorophyll-a, and fluorescent dissolved organic matter (fDOM).

In addition to the datasondes which are deployed continuously from April-December, monthly surface water samples (grabs) are collected at each site. These samples are analyzed for nutrients such as ammonia, orthophosphate, organic carbon and nitrogen, total suspended solids, etc. See related documents on "Grab Sample" measurements at https://scholars.unh.edu/prep/.

Methods:
The data were reviewed following protocols developed by NHDES and the NERR system and is based on the NERR's System-Wide Monitoring Program (SWMP). (See Attachments 1 and 2.) In addition, more information on datasonde and non-datasonde (grab sample) water quality monitoring can be found by looking at recent Quality Assurance Project Plans (QAPPs), which can be found at https://scholars.unh.edu/prep.

In 2020, the following stations had datasondes deployed: SWMP Stations included Great Bay (GRBGB), Lamprey River (GRBLR), Oyster River (GRBOR) and Squamscott River (GRBSQ). Other stations included Cocheco River (GRBCR), Great Bay East (GRBGBE), Upper Little Bay (GRBULB), Upper Piscataqua River (GRBUPR), and Hampton Harbor (HHHR) (See map, page 3.)

The QA system employed for the NERR program includes metadata and data processing via an automated QA Excel macro. (See Attachment 2.) All sites were processed using this macro which utilizes the "flag" codes described below in the "Data Management" section. The macro assigns a "comment" code to further explain each flag. All data is carefully reviewed (manually, as well as within the automated macro) and a determination made as to its validity. Additional flag and comment codes are assigned as needed. Calibration logs are provided as metadata for the non-SWMP stations. (See Attachment 3.)

Data management:
All results for any parameter with a -2, -3, -4, or -5 flag were marked as invalid. All data flagged as suspect <1> were thoroughly assessed. Data determined to be anomalous were rejected in the macro or marked as invalid on the final spreadsheet which is uploaded into NHDES' Environmental Monitoring Database.

-5 Outside High Sensor Range
-4 Outside Low Sensor Range
-3 Data Rejected due to QAQC
-2 Missing Data
-1 Optional System-Wide Monitoring Program (SWMP) Supported Parameter
0 Data Passed Initial QAQC Checks
1 Suspect Data
2 *Open - reserved for later flag*
3 Calculated Data: Non-vented depth/level sensor correction for changes in barometric pressure
4 Historical Data: Pre-auto QAQC
5 Corrected Data

Great Bay Estuary & Hampton/Seabrook Estuary Sampling Stations

Chlorophyll and Fluorescent Dissolved Organic Matter (fDOM): YSI EXO2 datasondes were used at all sites. Starting in 2017, the EXO2 datasondes were outfitted with optical total algae probes (chlorophyll-a and blue-green algae) and fDOM probes. Total algae sensors measure chlorophyll-a (µg/L and RFU) and phycocyanin (µg/L and RFU). fDOM is measured in quinine sulfate units (1 QSU = 1 ppb quinine sulfate).

Chlorophyll-a and fDOM validation samples were collected at GRBUPR to determine whether there is a correlation between sensor readings in the field and grab samples processed in the laboratory. Grab samples were taken with a Niskin water sampler at sonde depth, 0.5 meters off the bottom. Samples were collected during monthly datasonde swaps and mid-way through the deployment, approximately every two weeks.

A simple regression analysis was performed for each site. None of these sites showed a significant correlation between chlorophyll-a and fDOM datasonde readings and samples analyzed in the laboratory. According to YSI, the sensor manufacturer, the sensors are designed to simply serve as a proxy for concentrations in the field and to complement traditional lab analysis methods; therefore, there are accuracy limitations associated with the data. The YSI user's manual lists interference from other fluorescent species, differences in calibration methods, and the effects of cell structure, particle size, organism type, temperature, and light on sensor measurements as potential issues. Therefore, all data from the total algae and fDOM probes are considered preliminary unless comparisons between the probe data and analytical data demonstrate a statistically significant trend and the data are corrected.

These preliminary data are included in the NHDES submission but have been flagged as invalid and should only be used to look at general trends and not specific concentrations. In the case of chlorophyll, data are considered an estimate as there is a poor correlation between probe readings and extracted chlorophyll-a grab sample data. Similarly, fDOM data are also considered an estimate as there is a poor correlation between probe readings and laboratory fluorometric grab sample analysis. Samples have not yet been collected to assess the accuracy of the blue-green algae sensors or chlorophyll-a raw fluorescence units (RFU). Although these data are not valid for NHDES' assessment purposes, the data were reviewed, and anomalous points were rejected using the QA Excel macro. The data files retain these flags and associated comments to assist NHDES in their assessment process.

Daylight Savings Time Adjustment: All the data collected by the datasondes were recorded using Eastern Standard Time. To import the data to the NHDES' Environmental Monitoring Database, the times were converted to "watch time", (i.e., the time that you would see on a watch at that time, which includes adjustments for Daylight Savings Time). The specific methods for this time conversion are listed below.

On 11/01/2020 at 02:00:00 EDT, clocks changed to 01:00:00 EST. There were two sets of readings at 01:00:00, 01:15:00, 01:30:00 and 01:45:00 for EDT and EST. The first set of readings at 01:00:00, 01:15:00, 01:30:00 and 01:45:00 EDT were deleted and replaced with the readings at 01:00:00, 01:15:00, 01:30:00 and 01:45:00 EST.

Results

The automated and manual review resulted in the rejection of some portion of the data collected at all sites. This is normal given the extreme conditions and challenges seen in estuarine environments. The most common challenges were biofouling, failure of particular sensors (e.g. specific conductance), wiper malfunctions, battery failures, and errors in the placement or anchoring of the datasonde.

Nonetheless, the deployed datasondes collected substantial amounts of valid data, each collecting values for approximately 10 parameters every 15 minutes, between April and December. Detailed results of the automated and manual review of the data are described in the following sections, organized by station.

Anomalous Readings During Deployment

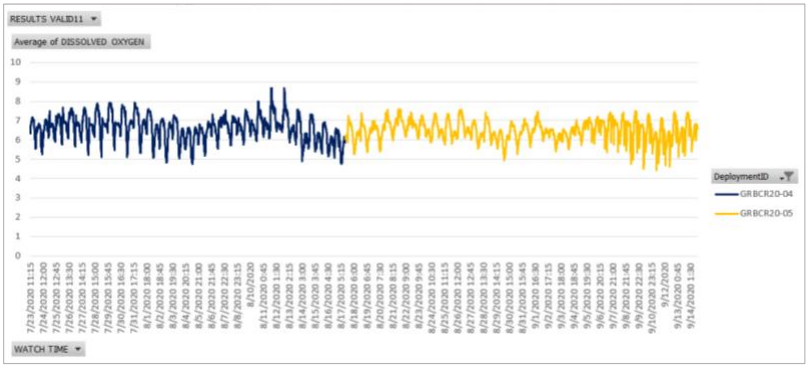
General data notes

The depth data at all stations, except GRBLR and GRBSQ, can display a fair bit of variability between deployments. Due to design of the datasonde rigs, when swapping the instrument, it is necessary to pull up the anchor which the datasonde is attached to. We have a GPS waypoint for the site and mark the spot with a temporary float when we pull up the sonde anchor, but it is still very difficult to return the anchor to exactly the same location. This can cause +/- 0.5-meter depth discrepancies between deployments.

Cocheco River (Station GRBCR)

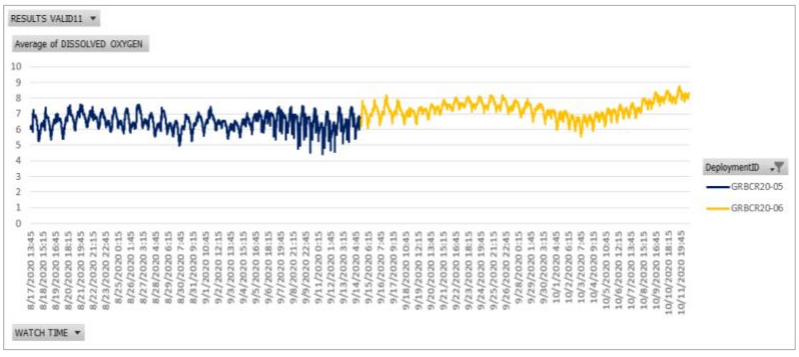
Deployment 4

Dissolved oxygen: When the datasonde was retrieved 08/17/2020, it had heavy tunicate fouling on the sensor bodies, sonde guard, and around the edges of the central wiper brush. This biofouling caused the slow decrease in dissolved oxygen values at the end of the deployment. (See blue line.) As a result, dissolved oxygen data from 08/14/2020 02:45 through the end of the deployment 08/17/2020 13:30 EDT were invalidated.



Deployment 5

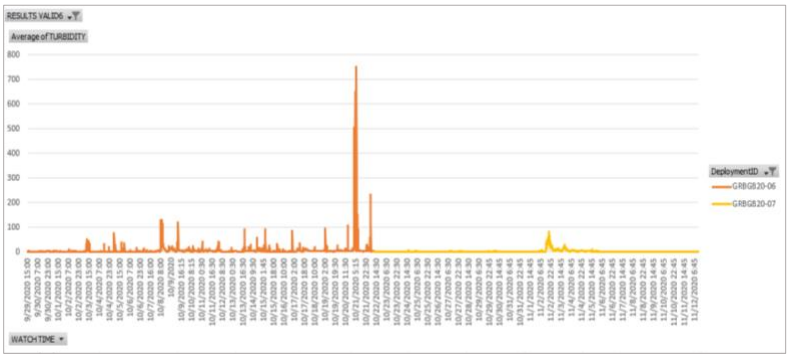
Dissolved oxygen: When the datasonde was retrieved 09/14/2020, it had heavy tunicate fouling on the sensor bodies and sonde guard. This biofouling caused the slow decrease in dissolved oxygen values at the end of the deployment. (See blue line.) As a result, dissolved oxygen data from 09/09/2020 06:45 through the end of the deployment 09/14/2020 15:15 EDT were invalidated.



Great Bay (Station GRBGB)

Deployment 6

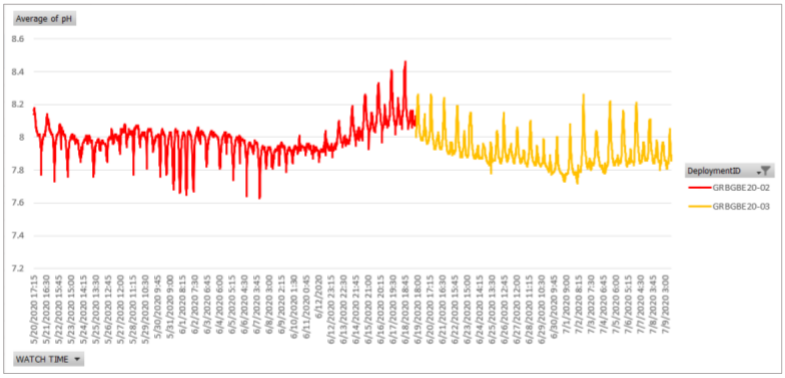
Turbidity: Turbidity data from 10/21/2020 02:45 – 07:30 EDT were initially labeled suspect. We believe the central wiper malfunctioned repeatedly during this deployment. This may have caused the wiper to park over, or partially over, the turbidity sensor face causing abrupt spikes. (See orange line) In addition, when the sonde was retrieved, the wiper brush was missing. As a result of this wiper malfunction, turbidity data from 10/21/2020 02:45 – 07:30 EDT were invalidated. Please check the SWMP metadata for further discussion. (See Attachment 2.)



Great Bay East (Station GRBGBE)

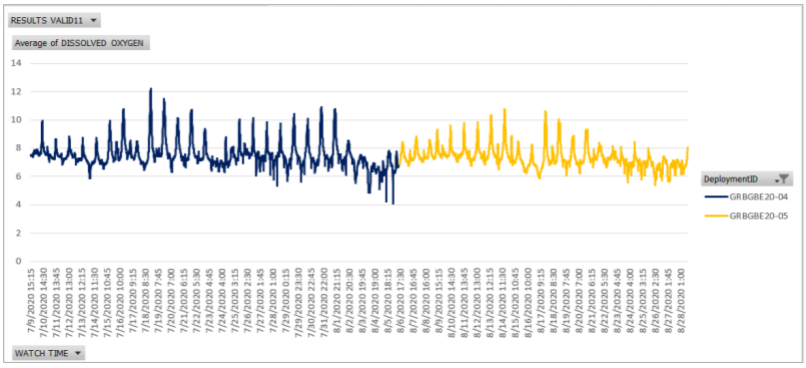
Deployment 2

pH: When the datasonde was retrieved 06/19/2020, it had a moderate layer of hydroids on the sensor bodies and the inside of the sonde guard. The sensor post-calibrated low, but within range. It is likely that the biofouling caused the increase in pH values at the end of the deployment. (See red line.) As a result, pH data from 06/16/2020 23:30 through the end of the deployment 06/19/2020 15:15 EDT were invalidated.

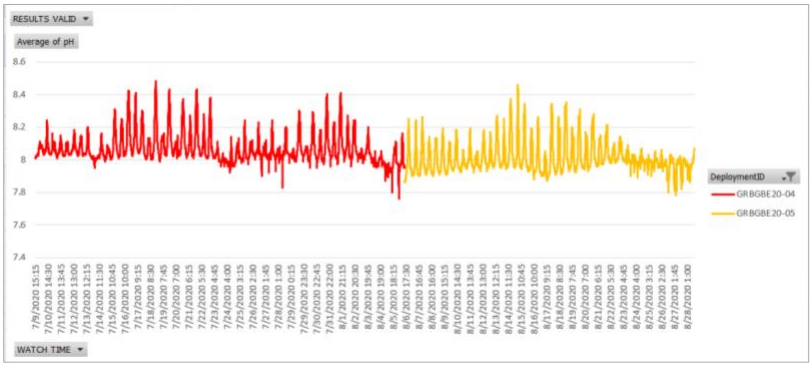


Deployment 4

Dissolved oxygen: When the datasonde was retrieved 08/06/2020, it had heavy tunicate fouling on the sensor bodies and sonde guard. This biofouling caused the slow decrease in dissolved oxygen values towards the end of the deployment. (See blue line.) As a result, dissolved oxygen data from 08/03/2020 05:30 through the end of the deployment 08/06/2020 15:00 EDT were invalidated.

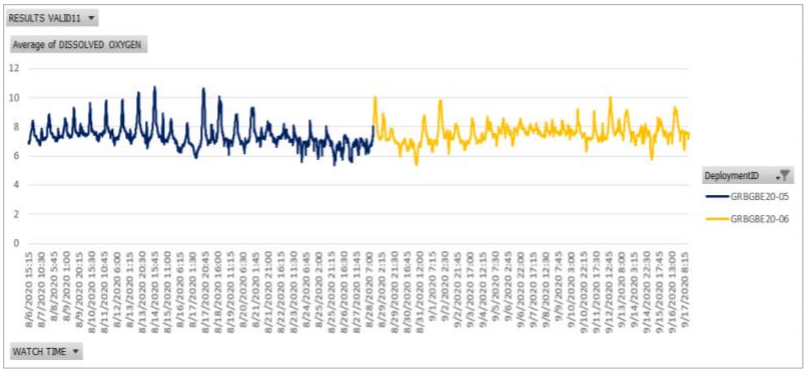


pH: When the datasonde was retrieved 08/06/2020, it had heavy tunicate fouling on the sensor bodies and sonde guard. This biofouling caused the slow decrease in pH values towards the end of the deployment. (See red line.) As a result, pH data from 08/05/2020 03:15 through the end of the deployment 08/06/2020 15:00 EDT were invalidated.

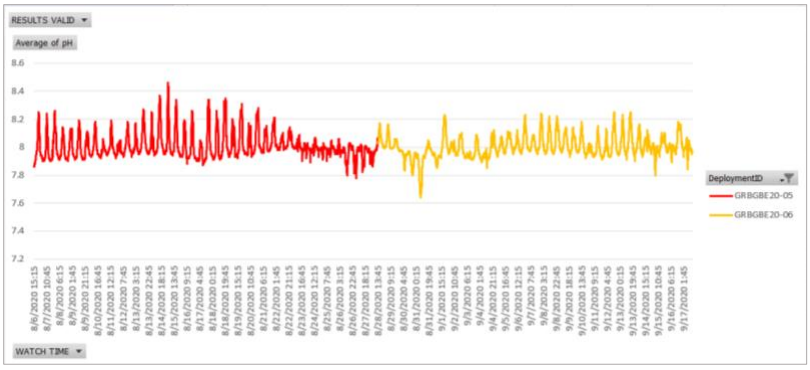


Deployment 5

Dissolved oxygen: The central wiper brush was very loose when the datasonde was retrieved 08/28/2020. This may indicate that it had not been wiping effectively or consistently. We suspect this may have caused the slow decrease in dissolved oxygen values as the sensor face became fouled. (See blue line.) As a result, dissolved oxygen data from 08/26/2020 01:30 through the end of the deployment 08/28/2020 13:45 EDT were invalidated.



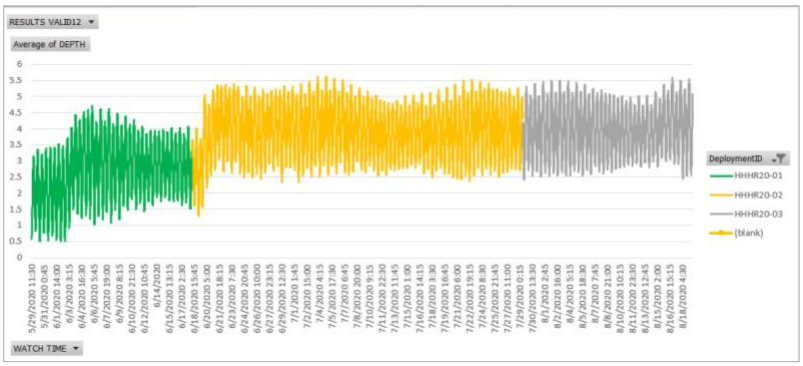
pH: The central wiper brush was very loose when the datasonde was retrieved. This may indicate that it had not been wiping effectively or consistently. We suspect this may have caused the slow decrease in pH values as the sensor face became fouled. (See red line.) As a result, pH data from 08/26/2020 04:00 through the end of the deployment 08/28/2020 13:45 EDT were invalidated.



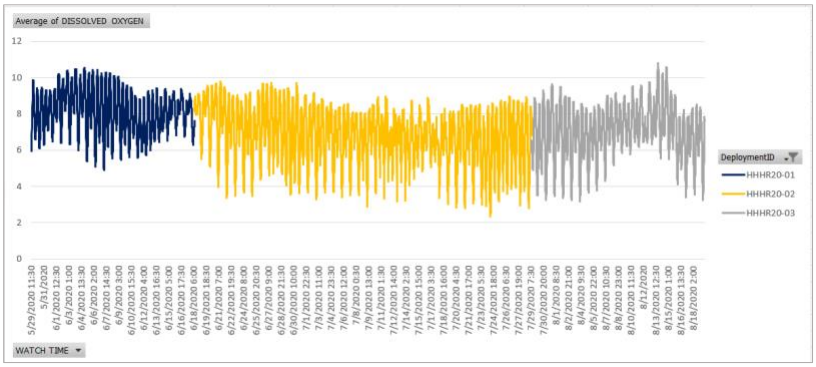
Hampton Harbor (Station HHHR)

Deployment 1

Depth: The datasonde was deployed 05/29/2020 11:30 EDT at the GPS waypoint that was used last field season. The bathymetry of the area had changed over the winter though and this location was deemed too shallow. The datasonde rig was moved approximately 8 meters from its original location 06/03/2020 09:15 EDT. The anchor was relocated to the other side of the boat channel. It was placed on a sandbar which may have been sloped and unstable. Depth increased by 0.5 meter. (See green line.) After checking depth data from the first deployment, it was decided that the location was still too shallow. The rig was moved further into the channel 06/19/2020 17:15 EDT. Depth increased by 1 meter. (See yellow line) The datasonde stayed at this location for the rest of the field season.

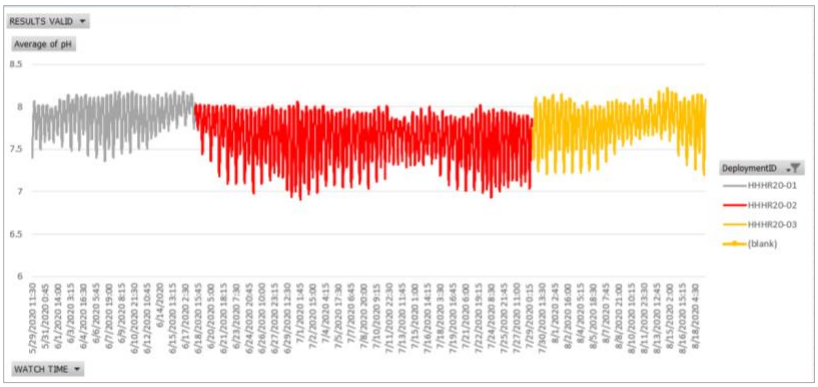


Dissolved oxygen: The shallow placement of the datasonde 05/29/2020 11:30 through 06/19/2020 17:00 EDT likely caused the slightly higher dissolved oxygen readings during the first deployment. (See blue line.) As the general trend of the data was not unusual, the data was retained and labeled valid.



Deployment 2

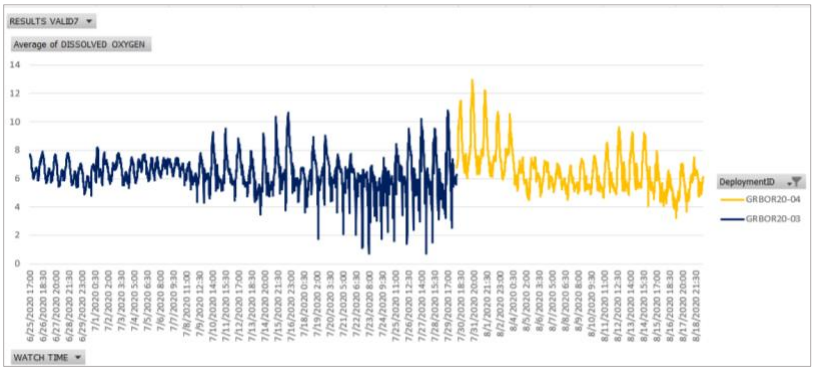
pH: The pH data during the full deployment 06/18/2020 09:00 - 07/29/2020 09:30 EDT were slightly lower than the adjacent deployments. (See red line.) The sensor had a new tip installed and it calibrated and post-calibrated slightly low, although within range and specifications of the sensor. We have no reason to believe that the data are anomalous. As a result, the pH data were retained and labeled valid.



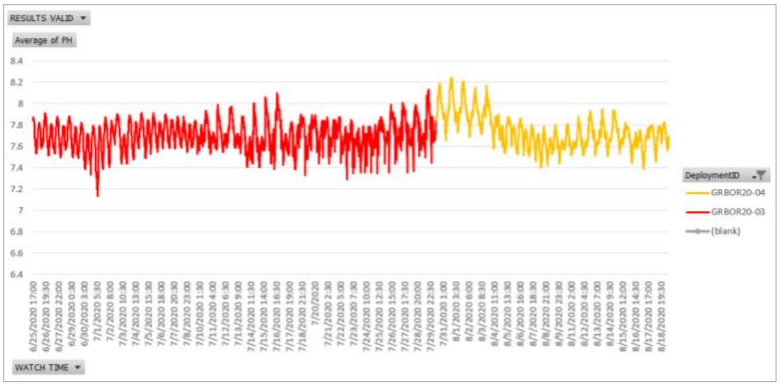
Oyster River (Station GRBOR)

Deployment 3

Dissolved oxygen: Dissolved oxygen data from 07/19/2020 03:30 - 07/30/2020 10:15 EDT were initially flagged suspect due to the rapid decrease, and then increase, in values during ebbing mid-tide. (See blue line) The field logs do not note any biofouling and the datasonde post-calibrated within range. We believe the dissolved oxygen values on the high end of the range are reliable. We suggest that the low dissolved oxygen data are valid, but perhaps an artifact of the sonde rig location for this deployment, as the trend was resolved when the sonde was replaced. As a result, dissolved oxygen data from 07/19/2020 03:30 through the end of the deployment 07/30/3030 10:15 EDT were invalidated. Please check the SWMP metadata for further discussion. (See Attachment 2.)



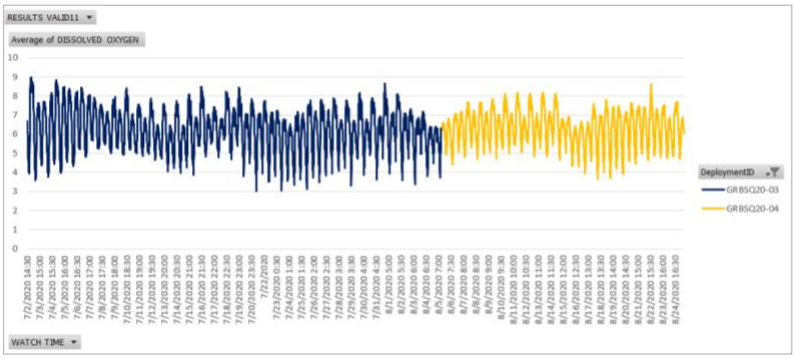
pH: pH data from 07/22/2020 17:30 – 07/30/2020 10:15 EDT passed initial QAQC checks. The field logs do not note any biofouling and the datasonde post-calibrated within range. We believe the pH values on the high end of the range are reliable. We suggest that the lower pH data are valid but perhaps an artifact of the sonde rig location for this deployment as the trend was resolved when the sonde was replaced. (See red line.) As a result, pH data from 07/22/2020 17:30 through the end of the deployment 07/30/3030 10:15 EDT were invalidated.



Squamscott River (Station GRBSQ)

Deployment 3

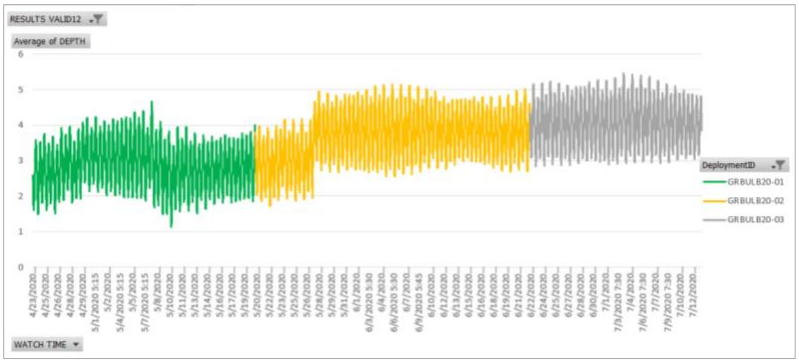
Dissolved oxygen: Dissolved oxygen data from 07/21/2020 08:15 through the end of the deployment 08/05/2020 13:30 EDT were initially flagged suspect. (See blue line.) When the datalogger was retrieved 08/05/2020, there was a heavy layer of bushy hydroids on the sensor bodies and sonde guard, although the sensor faces were clean, and the central wiper brush was parked. All sensors post-calibrated within range. Because low dissolved oxygen values continued after the swap of the datasonde, and the general range of the data was consistent throughout both deployments, the suspect data were retained and labeled as valid.



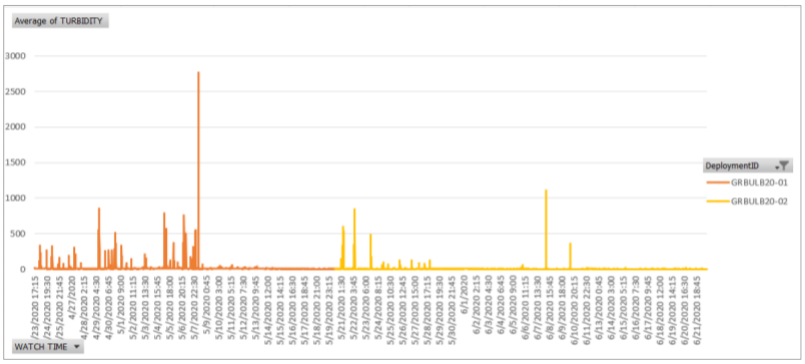
Upper Little Bay (Station GRBULB)

Deployment 1

Depth: The datasonde was deployed 04/23/2020 17:15 EDT at the GPS waypoint that was used last field season. It was retrieved 05/20/2020 12:15 EDT. (See green line.) It was redeployed 05/20/2020 12:30 EDT at the same location. The bathymetry of the area had changed over the winter though and the depth was now significantly different from the 2019 field season. To maintain consistency, the datasonde rig was moved 05/27/2020 11:30 EDT, approximately 3 meters further out into the channel. The depth increased by 0.8 meters. (See yellow line.) It remained at this location and depth for the rest of the field season.

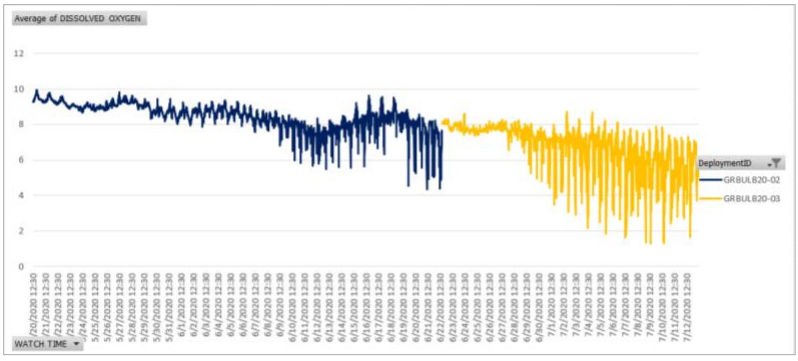


Turbidity: Throughout Deployment 1 and the beginning of Deployment 2, there were unusually high turbidity spikes. (See orange line and the beginning of yellow line.) We suspect the spikes were caused by the shallow placement of the datasonde rig as discussed above. As a result, turbidity data from 04/23/2020 17:15 through 05/27/2020 11:15 EDT were invalidated.



Deployment 2

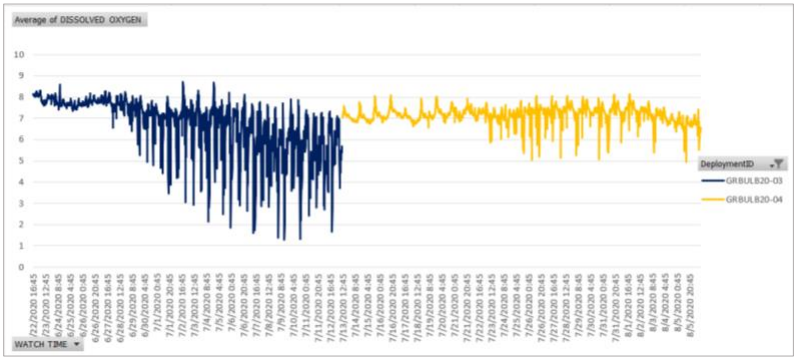
Dissolved oxygen: When the datasonde was retrieved 06/22/2020 16:30 EDT, there was a large piece of seaweed (Saccharina latissima) wrapped around the sonde pipe and tangled in the rig. We suspect this biofouling may have restricted water flow leading to the decreased oxygen values. (See blue line.) As a result, dissolved oxygen data from 06/19/2020 22:30 through the end of the deployment 06/22/2020 16:15 EDT were invalidated.



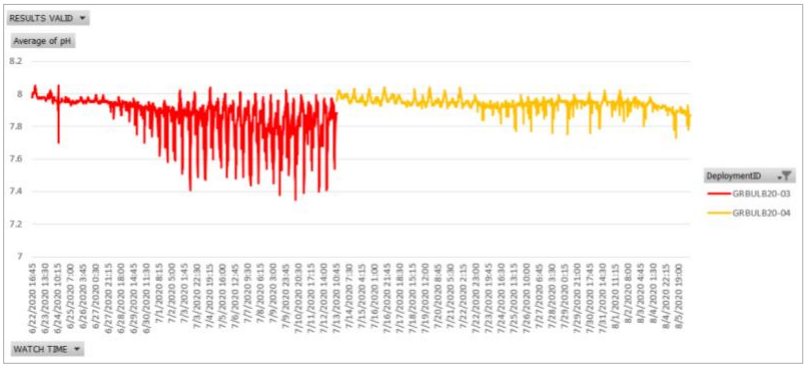
pH: When the datasonde was retrieved 06/22/2020 16:30 EDT, there was a large piece of seaweed (Saccharina latissima) wrapped around the sonde pipe and tangled in the rig. We suspect this biofouling may have restricted water flow leading to the decreased pH values. As a result, pH data from 06/19/2020 22:30 through the end of the deployment 06/22/2020 16:15 EDT were invalidated.

Deployment 3

Dissolved oxygen: When the datasonde was retrieved 07/13/2020 11:30 EDT, there was a large piece of seaweed (Saccharina latissima) wrapped around the sonde pipe and tangled in the rig. We suspect this biofouling may have restricted water flow leading to the decreased oxygen values. (See blue line.)
It is also possible that the four inches of rain that fell 06/29/2020 – 06/30/2020 contributed to the lower dissolved oxygen values. As a result, dissolved oxygen data from 06/29/2020 20:30 through the end of the deployment 07/13/2020 11:15 EDT were invalidated.

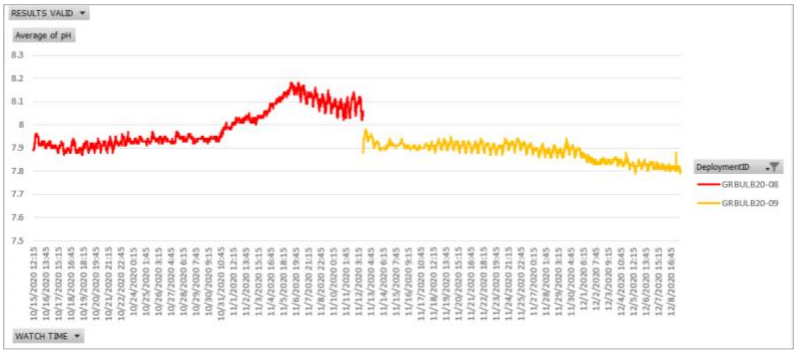


pH: When the datasonde was retrieved 07/13/2020 11:30 EDT, there was a large piece of seaweed (Saccharina latissima) wrapped around the sonde pipe and tangled in the rig. We suspect this biofouling may have restricted water flow leading to the decreased pH values. (See red line.) In addition, the central wiper brush may have been parked partially over the sensor face. It is also possible that the four inches of rain that fell 06/29/2020 – 06/30/2020 contributed to the lower pH values. As a result, pH data from 07/01/2020 09:45 through the end of the deployment 07/13/2020 11:15 EDT were invalidated.



Deployment 8

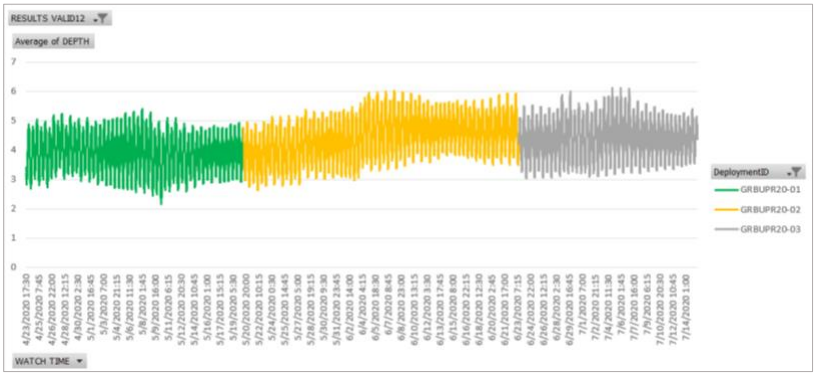
pH: When the datasonde was post-calibrated 11/13/2020, the pH millivolt readings were almost out-of-range. The millivolt values are a diagnostic tool that allows the user to determine when the pH sensor tip needs to be replaced. The aging sensor tip caused the unusual increase in pH values the second half of the deployment.
As a result, pH data from 10/31/2020 08:00 through the end of the deployment 11/12/2020 13:00 EDT were invalidated.



Upper Piscataqua River (Station GRBUPR)

Deployment 1

Depth: The datasonde was deployed 04/23/2020 17:30 EDT at the GPS waypoint that was used last year. It was retrieved 05/20/2020 11:30 EDT. (See green line.) It was redeployed 05/20/2020 12:00 EDT at the same location. The bathymetry of the area had changed over the winter though and the depth was now significantly different from the 2019 field season. To maintain consistency, the datasonde rig was moved 05/27/2020 12:00 EDT, approximately 3 meters further out into the channel. The depth increased by 0.4 meters. (See yellow line.) It remained at this location and depth for the rest of the field season.

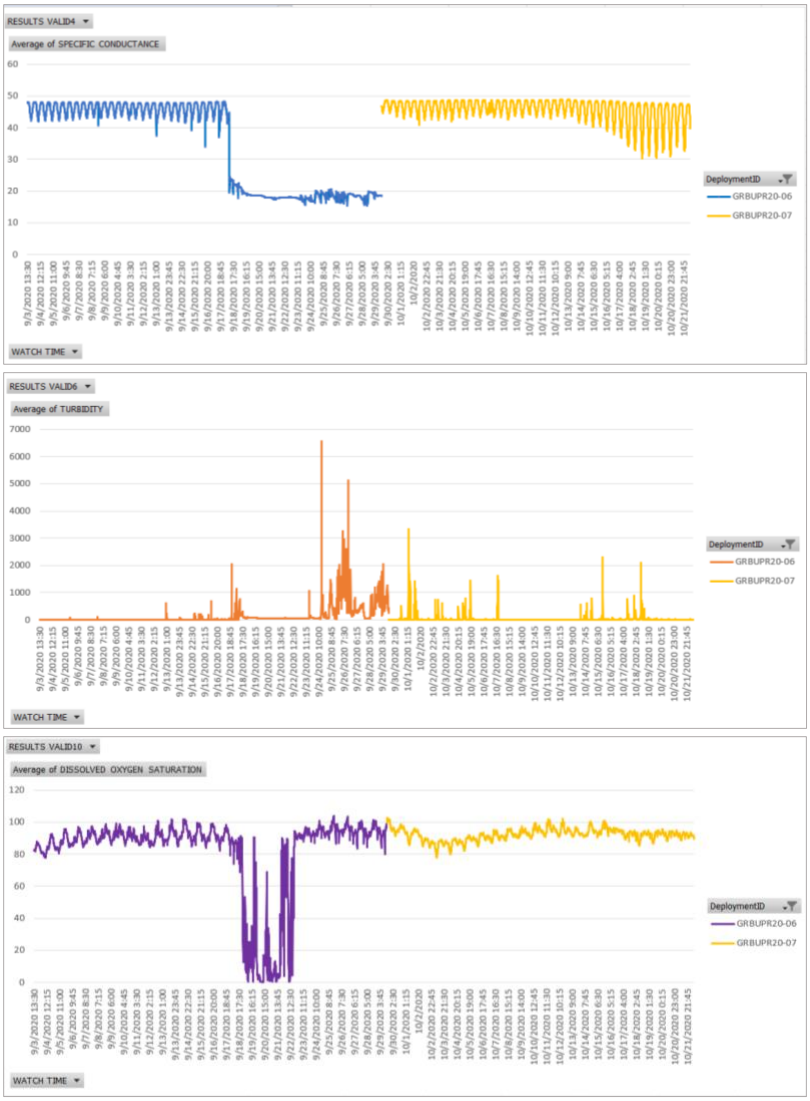


Deployment 6

All parameters: When the datasonde was retrieved 09/29/2020 15:30 EDT, the central wiper brush was stuck inside of the specific conductance sensor and it was very splayed. There was a lot of organic matter trapped around this sensor. There was light biofouling on the rest of the sensors. All sensors post-calibrated within range. As a result of this wiper malfunction the following data were rejected:

pH: 09/18/2020 07:45 – 09/24/2020 03:30 EDT
Specific conductance: 09/18/2020 10:30 through the end of the deployment 09/29/2020 15:30 EDT (See blue line)
Turbidity: 09/18/2020 15:50 through the end of the deployment 09/29/2020 15:30 EDT (See orange line)
Dissolved oxygen %: 09/18/2020 07:45 – 09/22/2020 19:00 EDT (See purple line)
Dissolved oxygen mg/L: 09/18/2020 10:30 through the end of deployment 09/29/2020 15:30 EDT
Depth: 09/18/2020 10:30 through the end of deployment 09/29/2020 15:30 EDT

Overall, 32% of the data from this deployment was rejected due to the wiper malfunction.



Lamprey River (Station GRBLR)

This dataset was reviewed, and no additional anomalous data were detected. Data from this site were previously rejected using the QA Excel macro. These rejections were flagged and assigned comment codes which will be a part of the file uploaded to the EMD.

Attachment 1

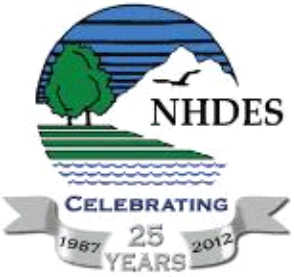
Criteria for Acceptance of GBNERR Dissolved Oxygen Datasonde Records for 305(b) Assessment Purposes

New Hampshire Department of Environmental Services
Water Division
Watershed Management Bureau

Prepared by
Matthew A. Wood, DES Water Quality Specialist

New Hampshire Department of Environmental Services
PO Box 95 • 29 Hazen Drive
Concord, New Hampshire 03302

Thomas S. Burack, Commissioner
Harry T. Stewart, P.E., Water Division Director



March 2012

Version: 2 (03/28/2012)

Introduction

Great Bay National Estuarine Research Reserve (GBNERR) and the University of New Hampshire (UNH) deploy datasondes throughout the Great Bay Estuary to monitor water quality during the ice-free season. The New Hampshire Department of Environmental Services (DES) uses measurements from the datasondes to determine whether water quality standards are being met in Great Bay for the Section 305(b) Surface Water Quality Assessments. A violation of water quality standards has implications for point source discharges, municipalities, and other sources of pollutants to the water body. Therefore, the data used for 305(b) purposes must pass certain quality assurance protocols.

GBNERR and UNH review the original data files and remove questionable data. Data and metadata for most of the deployments are available at http://cdmo.baruch.sc.edu/. The quality assurance process described in this document is only relevant for 305(b) purposes. The limitations placed on the data by these criteria do not restrict the use of the data for other purposes.

Purpose

To document the quality assurance criteria that DES will use to determine whether data from the datasondes should be used for 305(b) purposes.

Assumptions

- UNH utilizes YSI EXO2 datasondes, which use optical dissolved oxygen sensors. Because the sensors are very reliable and cleaned by the central wiper brush before every reading, all DO measurements of the deployment will be presumed to be accurate unless proven otherwise by quality control (QC) measurements.
- Laboratory calibration checks of DO saturation in a 100% solution will be considered a QC measurement. QC measurements should be completed at the end of each deployment. QC measurements at the beginning of each deployment are not necessary as the instrument will be calibrated to 100% saturation prior to deployment.
- Post deployment QC measurements will be considered to "pass" if the value is within ± 0.5 mg/L of the saturation value, following the EPA Region 1 Laboratory QAPP (EPA, 2011) and the EPA National Coastal Condition Assessment QAPP (EPA, 2010). For the purposes of the calculation, it will be assumed that the QC test is done at standard temperature and adjusted barometric pressure (760 mmHg, 25°C). The saturation concentration of dissolved oxygen at standard temperature and pressure is equal to 8.2 mg/L.
- Sonde deployments for which the post-deployment dissolved oxygen readings fail to "pass" the post-deployment QC measurements will be flagged for further review to determine whether the data can be used for 305(b) assessments. This review will look for anomalous readings, sensor drift, and changes in dissolved oxygen readings before and after sonde calibration or replacement. DES will provide a justification for validating some or all of the dissolved oxygen data from these deployments.
- Sonde deployments for which the post-deployment QC measurements were not conducted or are missing will be flagged for further review to determine whether the data can be used for 305(b) assessments. This review will look for anomalous readings, sensor drift, and changes in dissolved oxygen readings before and after sonde calibration or replacement. DES will provide a justification for validating some or all of the dissolved oxygen data from these deployments.
- For all other parameters besides dissolved oxygen, the results retained in the datafile by the GBNERR or UNH project managers will be accepted as valid for 305b purposes.

Quality Assurance Criteria and Process

Step 1: Based on the assumptions listed above, the DO data for each deployment will be evaluated using the QC measurements. The DO measurements in the deployment will determined to be acceptable for 305(b) purposes if the post-deployment QC measurement of dissolved oxygen value is within ± 0.5 mg/L of the saturation value (8.2 mg/L). If the post-deployment QC measurement is reported in units of percent saturation, the measurement

will be converted to units of mg/L by multiplying the percent value by 8.2 mg/L. Each deployment will be assigned a category of either “pass” or “fail” relative to this post-deployment QC test.

Step 2: The time series of DO (as % sat) will be plotted for each deployment to verify that the classifications from Step 1 are justified. If DO data from a deployment passed QC tests in Step 1 but had obvious errors based on the plot, then DES may decide to reject the data from this deployment. Likewise, if there is a good explanation for why data from a deployment failed QC tests, then DES may decide to include the data from this deployment. Determinations of this sort will be documented in a memo.

Step 3: DO results that are determined to not be useful for 305(b) purposes will be marked with an “N” in the ResultsValid field for DO in the deployment datafile and then uploaded to the DES Environmental Measurement Database.

Step 4: A quality assurance memo will be prepared summarizing the determinations from this process.

References

EPA. 2010. National Coastal Condition Assessment. Quality Assurance Project Plan. 841-R-09-004. U.S. Environmental Protection Agency, Office of Water, Office of Environmental Information, Washington DC. July 2010. Published online: http://water.epa.gov/type/watersheds/monitoring/upload/ncca-qapp.pdf.

EPA. 2011. US EPA Region 1. YSI Model 6-Series SONDES and Data Logger Standard Operating Procedure (Including: Temperature, pH, Specific Conductance, Turbidity, Dissolved Oxygen, Chlorophyll, ORP, Optical DO and Barometric Pressure), Revision 11, October 20, 2011.

Attachment 2

Great Bay (GRB) NERR Water Quality Metadata
April 1 – December 9, 2020
Latest Update: April 14, 2021

Note: This is a provisional metadata document; it has not been authenticated as of its download date. Contents of this document are subject to change throughout the QAQC process and it should not be considered a final record of data documentation until that process is complete. Contact the CDMO cdmosupport@belle.baruch.sc.edu or Reserve with any additional questions.

I. Data Set and Research Descriptors

1) Principal investigator(s) and contact persons

Thomas K. Gregory
Research Scientist
Ocean Process Analysis Lab
University of New Hampshire
Durham, NH 03824
email: tom.gregory@unh.edu
Phone (603) 862-5136

Christopher Peter
Research Coordinator
Great Bay National Estuarine Research Reserve
New Hampshire Fish & Game Department
89 Depot Road
Greenland, NH 03840
email: Christopher.Peter@wildlife.nh.gov
Phone (603) 294-0146

Lara Martin
Research Technician
University of New Hampshire
Jackson Estuarine Laboratory
85 Adams Point Road
Durham, NH 03824
email: Lara.Martin@unh.edu
Phone (415) 680-4944

2) Entry verification

Deployment data are downloaded from the YSI EXO2 data loggers to a Dell Latitude E5540 laptop (IBM compatible). Files are exported from the KOR Software in an Excel File (.XLS) and uploaded to the CDMO where they undergo automated primary QAQC, automated depth corrections for changes in barometric pressure (cDepth parameter), and then become part of the CDMO's online provisional database. All pre- and post-deployment data are removed from the file prior to upload. During primary QAQC, data are flagged if they are missing or out of sensor range. The edited file is then returned to the Reserve for secondary QAQC where it is opened in Microsoft Excel and processed using the CDMO's NERRQAQC Excel macro. The macro inserts station codes, creates metadata worksheets for flagged data and summary statistics, and graphs the data for review. It allows the user to apply QAQC flags and

codes to the data, remove any overlapping deployment data, append files, and export the resulting data file for upload to the CDMO. Upload after secondary QAQC results in ingestion into the database as provisional plus data, recalculation of the cDepth parameter, and finally tertiary QAQC by the CDMO and assimilation into the CDMO's authoritative online database. Where deployment overlap occurs between files, the data produced by the newly calibrated sonde are generally accepted as being the most accurate. For more information on QAQC flags and codes, see Sections 11 and 12. Tom Gregory and Lara Martin are responsible for data management. GRB archives all raw and QAQC'd files in Dropbox, in addition to back-up hard drives.

3) Research objectives

YSI EXO2 data loggers, hereafter referred to as sondes, are deployed in the middle of Great Bay (GB) and in the Squamscott (SQ), Oyster (OR), and Lamprey Rivers (LR) as part of the National Estuarine Research Reserves' (NERRS) System-wide Monitoring Program (SWMP). The goal is to develop and maintain temporally intensive long-term datasets of physio-chemical parameters of water quality at locations that are representative of the Great Bay estuarine system. The Great Bay site is relatively unimpacted, while the three tidal river sites (Lamprey, Oyster and Squamscott) have large drainage basins and are impacted by both point (wastewater treatment plants) and nonpoint sources of pollution. In addition to establishing a baseline of water quality and increasing our understanding of the spatial and temporal variability of important indicators of estuarine water quality, the data is used by researchers in the analysis of physical and biological processes.

4) Research methods

Sondes are programmed to obtain measurements of specific conductivity, salinity, dissolved oxygen mg/L and percent saturation, pH, temperature, depth, and turbidity every 15 minutes (Eastern Standard Time). Only EXO2 sondes were deployed 2017-2020, although in years previous to this, YSI model 6600 sondes were used. All are equipped with non-vented depth sensors.

Sondes are swapped every three to four weeks although CDMO protocols permit deployments up to 45 days. The sonde in the field is retrieved and a newly calibrated replacement deployed immediately so there is little to no data gap. The 3-4 week deployment duration may be constrained by battery life (shorter life in colder waters) and fouling of the sensors during the warm summer months. The instruments are deployed continuously during ice-free seasons, except for brief periods when they are removed for cleaning, maintenance, and recalibration.

YSI conductivity standard (YSI 3169 – 50 mS/cm) and Fondriest Environmental pH 7 and 10 buffers (FNBU5007-G and FNBU5010-G) are used for calibration. YSI turbidity standard (YSI 6073G – 124 FNU) is used to calibrate turbidity probes. Air-saturated water is used to calibrate percent dissolved oxygen. Temperature sensors are cross-checked every calibration against a NIST traceable certified thermometer. After a deployment, each sonde is brought back to the laboratory for a post-calibration check. Each sensor is run in its respective standard to determine whether calibration values have drifted during deployment.

During each sonde replacement, field measurements of temperature, salinity, specific conductance, and dissolved and percent oxygen are recorded using a handheld YSI PRO 2030 field meter.

Total Algae sensors (chlorophyll-a, in addition to blue-green algae/phycocyanin [BGA-PC]) and fluorescent dissolved organic matter (fDOM) sensors are now being deployed at 3 Great Bay reserve sites. Only chlorophyll-a data is QAQC'd using the CDMO macro. Blue-green algae and fDOM data are included in the reported dataset but have not been officially QAQC'd. Please contact the reserve for this data and sensor calibration protocols.

Chlorophyll sensors are individually calibrated in µg/L units using a 2-point calibration method. Deionized water is used as a 0 standard and a Rhodamine WT dye as the second standard (0.625 mg/L Rhodamine WT

dilution--200:1 dilution of the original liquid concentrate). The effect of temperature on the fluorescence of Rhodamine WT dye is accounted for when calibrating the EXO Total Algae sensor. The temperature correction coefficient of the Rhodamine WT standard solution is determined using a table provided by YSI. The true temperature of the standard is cross referenced to table values to obtain the corrected µg/L chl-a value for Rhodamine WT. The corrected fluorescence value is entered in the KOR software for calibration. We then post-calibrate the sensors in deionized water and dye standard to determine how much drift there is between deployments.

The Lamprey and Squamscott River sondes are deployed inside vertical piling mounted 4-inch PVC tubes with the sensors 0.5 meters off the bottom. The bottom of the SQ pipe has four 10-inch rectangular slots cut out to facilitate water flow. The LR sonde pipe has many 2-inch holes cut out for water flow. Both pipes were cleaned at the beginning of the 2019 field season.

The Great Bay sonde is deployed 0.5 meters off the bottom inside a 3-foot PVC tube that is attached to the shank of a 50-pound mushroom anchor. This pipe also has four 10-inch slots cut out.

Due to shallow depths and a narrow channel, the Oyster River sonde must be deployed with the least amount of vertical expression above bottom. Typically, it is around 0.5 meters, but it can be as shallow as 0.3 meters. This is achieved by deploying the sonde inside a 3-foot PVC tube that is attached to the shank of a 50-pound mushroom anchor, similar to the Great Bay site. This allows for the sonde to be stationed in an upright position but also makes the anchor less susceptible to dragging. The bottom of this pipe also has four 10-inch slots for flow.

The Squamscott River sonde is typically telemetered via Nexsens transmitters using cellular technology, although for 2020 it was not. The transmissions are scheduled hourly and contain 4 data sets reflecting fifteen-minute data sampling intervals. Upon receipt by the CDMO, the data undergoes the same automated primary QAQC process detailed in Section 2 above. The “real-time” telemetry data become part of the provisional dataset until undergoing secondary and tertiary QAQC and assimilation in the CDMO’s authoritative online database. Provisional and authoritative data are available at http://cdmo.baruch.sc.edu.

5) Site location and character

Site #1 Great Bay (GB)
Location: Central area of Great Bay proper.
Coordinates are 43º 04' 20" N latitude and 70º 52' 10" W longitude.
Salinity range: 5-32 ppt (seasonally); 0-5 ppt from high to low tide.
Temperature range: -1º C to 24º C (seasonally); 0-3 (from high to low tide)
Depth: 6.5 meters at MLW
Tidal height: 2.7 meters
Bottom type: Mud and rock channel bottom
Tidal velocity: maximum 50 cm/sec
Watersheds: Squamscott, Lamprey and Winnicut Rivers plus smaller streams.
High tide influence from Little Bay and associated rivers
Pollutant influence: clean reference site

Site #2 Squamscott River (SQ)
Location: Mid channel of the Squamscott River at the Boston and Maine Railroad Bridge, Stratham, NH.
Coordinates are 43º 02' 30" N latitude and 70º 55' 20" W longitude
Salinity range: 0-30 ppt (seasonally); 5-20 ppt from high to low tide.
Temperature range: -1º C to 27º C (seasonally); difference of 0-5º between high and low tide
Depth: 3.5 meters at MLW
Tidal height: 2.7 meters

Bottom type: Mud/oyster channel bottom
Tidal velocity: maximum 50 cm/sec
Watersheds: Exeter River, adjacent marshes
Pollutant influence: Urban stormwater, agriculture, two municipal wastewater treatment plants, residential septic systems

Site #3 Lamprey River (LR)
Location: West bank of the tidal portion of the Lamprey River, approximately 300 m downstream of the dam at Route 108 in Newmarket, NH.
Coordinates are 43º 04' 48" N latitude and 70º 56' 04" W longitude.
Salinity range: 0 - 27 ppt (seasonally); difference of up to 15 ppt between high and low tides.
Temperature range: -1º C to 27º C (seasonally); difference of up to 5º C between high and low tides.
Depth: 3.5 meters
Tidal height: 2.7 meters
Bottom type: Mud/rock
Tidal velocity: maximum 40 cm/sec
Watershed: Lamprey River
Pollutant influence: Urban stormwater, adjacent marina, upstream and downstream wastewater treatment plants, upstream agriculture

Site #4 Oyster River (OR)
Location: In the center channel of the tidal portion of the Oyster River, approximately 300 m downstream of the head of tide dam adjacent to Jackson's Landing in Durham, NH.
Coordinates are 43.134º N latitude and 70.911º W longitude
Salinity range: 0 –32 ppt (seasonally); difference of up to 15 ppt between high and low tides
Temperature range: -1º C to 27º C (seasonally); difference of up to 5° C between high and low tides
Depth: 0.3 meters at MLW, 3 meters at highest high tides
Tidal height: 2.7 meters (maximum)
Bottom type: Mud
Tidal velocity: maximum 40 cm/sec
Watershed: Oyster River
Pollutant influence: Urban stormwater, mooring field and crew dock, downstream wastewater treatment plant, upstream agriculture, residential on-site sewage disposal.

Station Code	SWMP Status	Station Name	Location	Active Dates	Reason Decommissioned	Notes
GB	P	Great Bay	43º 04' 20" N, 70º 52' 10" W	07/1995 – present	NA	NA
LR	P	Lamprey River	43º 04' 48" N, 70º 56' 04" W	05/1998 – present	NA	NA
OR	P	Oyster River	43º 08' 02" N, 70º 54' 40" W	06/2000 – present	NA	NA
SQ	P	Squamscott River	43º 02' 30" N, 70º 55' 20" W	07/1997 – present	NA	NA

6) Data collection period

Great Bay data collection began July 24, 1995. This sonde was originally on a floating buoy, approximately one meter below the surface. It was moved to its current location and depth (0.5

meters off the bottom) April 2014.
Squamscott River data collection began July 1997.
Lamprey River data collection began May 1998.
Oyster River data collection began June 2000.

The instruments are removed from the water during the winter months due to non-navigable conditions caused by ice and the removal of channel markers. Icing is particularly severe in the rivers and is harmful to instruments, boats, and telemetry equipment.

Great Bay Reserve Deployment Dates 2020

Great Bay

Deploy date and time	Retrieval date and time
05/07/2020 13:45	06/04/2020 10:00
06/04/2020 10:30	07/01/2020 14:30
07/01/2020 14:45	08/05/2020 11:45
08/05/2020 12:00	09/03/2020 13:00
09/03/2020 13:15	09/29/2020 13:45
09/29/2020 14:00	10/22/2020 09:15
10/22/2020 09:30	11/12/2020 12:45
11/12/2020 13:00	12/09/2020 08:45

Lamprey River

Deploy date and time	Retrieval date and time
05/14/2020 11:15	06/16/2020 11:00
06/16/2020 11:15	07/17/2020 10:30
07/17/2020 10:45	08/12/2020 07:30
08/12/2020 07:45	09/10/2020 09:00
09/10/2020 09:15	10/06/2020 07:45
10/06/2020 08:00	11/05/2020 15:00
11/05/2020 15:15	12/03/2020 14:30

Oyster River

Deploy date and time	Retrieval date and time
05/07/2020 12:30	06/05/2020 12:30
06/05/2020 13:00	06/25/2020 15:45
06/25/2020 16:00	07/30/2020 09:30
07/30/2020 09:45	08/19/2020 11:00
08/19/2020 11:05	09/10/2020 10:00
09/10/2020 10:15	10/01/2020 13:00
10/01/2020 13:15	10/22/2020 07:30
10/22/2020 07:45	11/10/2020 09:30
11/10/2020 09:45	12/04/2020 13:30

Squamscott River

Deploy date and time	Retrieval date and time
05/11/2020 09:45	06/11/2020 08:00
06/11/2020 08:15	07/02/2020 13:15
07/02/2020 13:30	08/05/2020 12:45
08/05/2020 13:00	08/25/2020 09:00
08/25/2020 09:15	09/17/2020 14:00
09/17/2020 14:15	10/09/2020 11:15

10/09/2020 11:30	11/09/2020 13:00
11/09/2020 13:15	12/09/2020 13:15

7) Distribution

NOAA retains the right to analyze, synthesize and publish summaries of the NERRS System-wide Monitoring Program data. The NERRS retains the right to be fully credited for having collected and process the data. Following academic courtesy standards, the NERR site where the data were collected should be contacted and fully acknowledged in any subsequent publications in which any part of the data are used. The data set enclosed within this package/transmission is only as good as the quality assurance and quality control procedures outlined by the enclosed metadata reporting statement. The user bears all responsibility for its subsequent use/misuse in any further analyses or comparisons. The Federal government does not assume liability to the Recipient or third persons, nor will the Federal government reimburse or indemnify the Recipient for its liability due to any losses resulting in any way from the use of this data.

Requested citation format:
NOAA National Estuarine Research Reserve System (NERRS). System-wide Monitoring Program. Data accessed from the NOAA NERRS Centralized Data Management Office website: http://www.nerrsdata.org/; *accessed* 12 October 2012.

NERR water quality data and metadata can be obtained from the Research Coordinator at the individual NERR site (please see Principal Investigators and Contact Persons), from the Data Manager at the Centralized Data Management Office (please see personnel directory under the general information link on the CDMO home page) and online at the CDMO home page www.nerrsdata.org. Data are available in comma delimited format.

8) Associated researchers, projects, and data end-users

As part of the SWMP long-term monitoring program, GRB NERR also monitors 15-minute meteorological along with monthly grab samples and diel sampling for nutrient data which may be correlated with this water quality dataset. These data are available at www.nerrsdata.org.

Submerged Aquatic Vegetation (SAV) research – Dr. David Burdick; Dr. Gregg Moore; Dr. Fred Short - Jackson Estuarine Laboratory. Supported by Piscataqua Region Estuaries Partnership and NH Department of Environmental Services.

Oyster reef mapping and restoration – Dr. Ray Grizzle, Jackson Estuarine Laboratory. Supported by NH Fish and Game, the NOAA-UNH Joint Hydrographic Center and the Center for Coastal and Ocean Mapping.

EPA National Coastal Assessment Program – Dr. Stephen H. Jones, Jackson Estuarine Laboratory. Funded by the US-EPA.

Oyster spawning and recruitment trends – The Nature Conservancy, University of New Hampshire, Great Bay NERR, and NH Fish and Game utilize temperature and salinity data for predictions.

Lobster and horseshoe crab migration trends – Dr. Win Watson, Jackson Estuarine Laboratory.

II. Physical Structure Descriptors

9) Sensor specifications

Great Bay NERR deployed only EXO2 sondes this monitoring year. Most of the sondes and sensors used were manufactured in 2016 and 2017. The reserve is still using one EXO2 from 2013 and three from 2014 and several probes from similar time periods. Typically, the sondes are outfitted with the same set of sensors throughout the monitoring season, although the sondes are rotated between all the sites. The reserve is now using Total Algae (Chlorophyll/BGA-PC) and fDOM probes which are a part of the sensor configuration. The Oyster River sonde does not have Total Algae or fDOM probes.

YSI EXO2 Sonde:

Parameter: Temperature
Units: Celsius (C)
Sensor Type: Wiped probe; Thermistor
Model#: 599827
Range: -5 to 50º C
Accuracy: ±0.2º C
Resolution: 0.001º C

Parameter: Conductivity
Units: milli-Siemens per cm (mS/cm)
Sensor Type: Wiped probe; 4-electrode cell with autoranging
Model#: 599827
Range: 0 to 100 mS/cm
Accuracy: ±1% of the reading or 0.002 mS/cm, whichever is greater
Resolution: 0.0001 to 0.01 mS/cm (range dependent)

Parameter: Salinity
Units: practical salinity units (psu)/parts per thousand (ppt). Values calculated using conductivity and temperature data
Model#: 599827
Sensor Type: Wiped probe
Range: 0 to 70 ppt
Accuracy: ±2% of the reading or 0.2 ppt, whichever is greater
Resolution: 0.01 psu

Parameter: Dissolved Oxygen % saturation
Sensor Type: Optical probe w/ mechanical cleaning
Model#: 599100-01
Range: 0 to 500% air saturation
Accuracy: 0-200% air saturation: +/- 1% of the reading or 1% air saturation, whichever is greater.
200-500% air saturation: +/- 5% or reading
Resolution: 0.1% air saturation

Parameter: Dissolved Oxygen mg/L (Calculated from % air saturation, temperature, and salinity)
Units: milligrams/Liter (mg/L)
Sensor Type: Optical probe w/ mechanical cleaning
Model#: 599100-01
Range: 0 to 50 mg/L
Accuracy: 0-20 mg/L: +/-0.1 mg/l or 1% of the reading, whichever is greater
20 to 50 mg/L: +/- 5% of the reading
Resolution: 0.01 mg/L

Parameter: Non-vented Level - Shallow (Depth)

Units: feet or meters (ft or m)
Sensor Type: Stainless steel strain gauge
Range: 0 to 33 ft (10 m)
Accuracy: +/- 0.013 ft (0.04 m)
Resolution: 0.001 ft (0.001 m)

Parameter: pH
Units: pH units
Sensor Type: Glass combination electrode
Model#: 599702 (wiped)
Range: 0 to 14 units
Accuracy: +/- 0.01 units within +/- 10° of calibration temperature, +/- 0.02 units for entire temperature range
Resolution: 0.01 units

Parameter: Turbidity
Units: formazin nephelometric units (FNU)
Sensor Type: Optical, 90º scatter
Model#: 599101-01
Range: 0 to 4000 FNU
Accuracy: 0 to 999 FNU: 0.3 FNU or +/-2% of reading (whichever is greater).
1000 to 4000 FNU +/-5% of reading
Resolution: 0 to 999 FNU: 0.01 FNU, 1000 to 4000 FNU: 0.1 FNU

Parameter: Chlorophyll/Total Algae (BGA-PC)
Units: micrograms/Liter (µg/Liter)
Sensor Type: Optical probe with mechanical cleaning
Model#: 599102-01
Range: 0 to 400 µg/Liter
Accuracy: Dependent on methodology
Resolution: 0.1 µg/Liter chl-a, 0.1% FS

Parameter: fDOM (fluorescent dissolved organic matter)
Units: Quinine sulfate units (QSU)
Sensor Type: Optical probe with mechanical cleaning
Model#: 599104-01
Range: 0 to 300 parts per billion (ppb) Quinine Sulfate equivalent (QSE)
Accuracy: Dependent on methodology
Resolution: 0.01 ppb QSE
Detection Limit: 0.07 ppb QSE

Depth Qualifier:

The NERR System-Wide Monitoring Program utilizes YSI data sondes that can be equipped with either vented or non-vented depth/level sensors. Readings for both vented and non-vented sensors are automatically compensated for water density change due to variations in temperature and salinity; but for all non-vented depth measurements, changes in atmospheric pressure between calibrations appear as changes in water depth. The error is equal to approximately 1.02 cm for every 1 millibar change in atmospheric pressure and is eliminated for vented sensors because they are vented to the atmosphere throughout the deployment time interval. Beginning in 2006, NERR SWMP standard calibration protocol calls for all non-vented depth sensors to read 0 meters at a (local) barometric pressure of 1013.25 mb (760 mm/Hg). To achieve this, each site calibrates their depth sensor with a depth offset number, which is calculated using the actual atmospheric pressure at the time of calibration and the equation provided in the SWMP calibration sheet or digital calibration log. This offset

procedure standardizes each depth calibration for the entire NERR System. If accurate atmospheric pressure data are available, non-vented sensor depth measurements at any NERR can be corrected.
In 2010, the CDMO began automatically correcting depth/level data for changes in barometric pressure as measured by the Reserve's associated meteorological station during data ingestion. These corrected depth/level data are reported as cDepth and cLevel and are assigned QAQC flags and codes based on QAQC protocols. Please see sections 11 and 12 for QAQC flag and code definitions.

NOTE: Older depth data cannot be corrected without verifying that the depth offset was in place and whether a vented or non-vented depth sensor was in use. No SWMP data prior to 2006 can be corrected using this method. The following equation is used for corrected depth/level data provided by the CDMO beginning in 2010: ((1013-BP)*0.0102)+Depth/Level = cDepth/cLevel.

Salinity Units Qualifier:

In 2013, EXO sondes were approved for SWMP use and began to be utilized by Reserves. While the 6600 series sondes report salinity in parts per thousand (ppt) units, the EXO sondes report practical salinity units (psu). These units are essentially the same and for SWMP purposes are understood to be equivalent, however psu is considered the more appropriate designation. Moving forward the NERR System will assign psu salinity units for all data regardless of sonde type.
Turbidity Qualifier:
In 2013, EXO sondes were approved for SWMP use and began to be utilized by Reserves. While the 6600 series sondes report turbidity in nephelometric turbidity units (NTU), the EXO sondes use formazin nephelometric units (FNU). These units are essentially the same but indicate a difference in sensor methodology, for SWMP purposes they will be considered equivalent. Moving forward, the NERR System will use FNU/NTU as the designated units for all turbidity data regardless of sonde type. If turbidity units and sensor methodology are of concern, please see the Sensor Specifications portion of the metadata.

Chlorophyll Fluorescence Disclaimer:

YSI chlorophyll sensors (6025 or 599102-01) are designed to serve as a proxy for chlorophyll concentrations in the field for monitoring applications and complement traditional lab extraction methods; therefore, there are accuracy limitations associated with the data that are detailed in the YSI manual including interference from other fluorescent species, differences in calibration method, and effects of cell structure, particle size, organism type, temperature, and light on sensor measurements.

10) Coded variable definitions

Sampling station:	Sampling site code:	Station code:
Great Bay	GB	grbgbwq
Lamprey River	LR	grblrwq
Oyster River	OR	grborwq
Squamscott River	SQ	grbsqwq

11) QAQC flag definitions

QAQC flags provide documentation of the data and are applied to individual data points by insertion into the parameter's associated flag column (header preceded by an F_). During primary automated QAQC (performed by the CDMO), -5, -4, and -2 flags are applied automatically to indicate data that is missing and above or below sensor range. All remaining data are then flagged 0, passing initial QAQC checks. During secondary and tertiary QAQC 1, -3, and 5 flags may be used to note data as suspect, rejected due to QAQC, or corrected.

-5 Outside High Sensor Range

-4 Outside Low Sensor Range
-3 Data Rejected due to QAQC
-2 Missing Data
-1 Optional SWMP Supported Parameter
0 Data Passed Initial QAQC Checks
1 Suspect Data
2 *Open - reserved for later flag*
3 Calculated data: non-vented depth/level sensor correction for changes in barometric pressure
4 Historical Data: Pre-Auto QAQC
5 Corrected Data

12) QAQC code definitions

QAQC codes are used in conjunction with QAQC flags to provide further documentation of the data and are also applied by insertion into the associated flag column. There are three (3) different code categories, general, sensor, and comment. General errors document general problems with the deployment or YSI datasonde, sensor errors are sensor specific, and comment codes are used to further document conditions or a problem with the data. Only one general or sensor error and one comment code can be applied to a particular data point, but some comment codes (marked with an * below) can be applied to the entire record in the F_Record column.

General Errors

GIC	No instrument deployed due to ice
GIM	Instrument malfunction
GIT	Instrument recording error; recovered telemetry data
GMC	No instrument deployed due to maintenance/calibration
GNF	Deployment tube clogged / no flow
GOW	Out of water event
GPF	Power failure / low battery
GQR	Data rejected due to QA/QC checks
GSM	See metadata

Corrected Depth/Level Data Codes

GCC	Calculated with data that were corrected during QA/QC
GCM	Calculated value could not be determined due to missing data
GCR	Calculated value could not be determined due to rejected data
GCS	Calculated value suspect due to questionable data
GCU	Calculated value could not be determined due to unavailable data

Sensor Errors

SBO	Blocked optic
SCF	Conductivity sensor failure
SCS	Chlorophyll spike
SDF	Depth port frozen
SDG	Suspect due to sensor diagnostics
SDO	DO suspect
SDP	DO membrane puncture
SIC	Incorrect calibration / contaminated standard
SNV	Negative value
SOW	Sensor out of water
SPC	Post calibration out of range
SQR	Data rejected due to QAQC checks

SSD Sensor drift
SSM Sensor malfunction
SSR Sensor removed / not deployed
STF Catastrophic temperature sensor failure
STS Turbidity spike
SWM Wiper malfunction / loss

Comments
CAB *Algal bloom
CAF Acceptable calibration/accuracy error of sensor
CAP Depth sensor in water, affected by atmospheric pressure
CBF Biofouling
CCU Cause unknown
CDA* DO hypoxia (<3 mg/L)
CDB* Disturbed bottom
CDF Data appear to fit conditions
CFK* Fish kill
CIP* Surface ice present at sample station
CLT* Low tide
CMC* In field maintenance/cleaning
CMD* Mud in probe guard
CND New deployment begins
CRE* Significant rain event
CSM* See metadata
CTS Turbidity spike
CVT* Possible vandalism/tampering
CWD* Data collected at wrong depth
CWE* Significant weather event

13) Post deployment information

Great Bay

Date Deployed	DO% adjusted for BP	Baro Press mmHg	Depth m	Depth Offset m	SpCond 50 mS/cm	pH 7	pH 10	Turbidity 0 FNU	Turbidity 124 FNU	Chl 0 DI ug/L	Chl Rhodamine ug/L	Rhodamine Standard ug/L
05/07/2020	99.6	756.7	-0.06	-0.05	50.03	7.14	10.09	0.23	125.1	-0.05	62.5	63.2
06/04/2020	98.7	754.4	-0.04	-0.04	50.10	7.07	9.92	0.20	124.7	-0.25	73.8	71.5
07/01/2020	99.0	759.7	-0.01	0.00	50.06	7.09	10.04	0.40	124.9	0.20	62.8	64.1
08/05/2020	99.3	755.7	-0.07	-0.06	48.35	6.92	9.96	0.02	123.5	0.05	64.7	64.1
09/03/2020	99.9	757.5	-0.03	-0.03	49.63	6.84	10.04	0.20	123.9	0.15	64.7	64.2
09/29/2020	100.3	768.5	0.12	0.12	50.03	6.98	10.06	0.30	123.1	0.2	64.3	63.8
10/22/2020	99.8	761.2	0.02	0.02	50.05	7.10	9.98	0.40	123.6	0.6	63.5	63.0
11/12/2020	99.1	755.5	-0.06	-0.06	49.73	7.00	9.97	-0.07	123.2	0.07	70.1	68.3

Lamprey River

Date Deployed	DO% adjusted for BP	Baro Press mmHg	Depth m	Depth Offset m	SpCond 50 mS/cm	pH 7	pH 10	Turbidity 0 FNU	Turbidity 124 FNU	Chl 0 DI ug/L	Chl Rhodamine ug/L	Rhodamine Standard ug/L
05/14/2020	101.6	771.6	0.15	0.16	50.06	7.13	9.98	0.04	125.1	-0.08	66.4	66.1
06/16/2020	99.8	763.4	0.05	0.05	50.44	7.05	10.05	0.05	124.5	0.0	65.9	65.7
07/17/2020	99.0	761.1	0.02	0.02	49.82	7.12	10.03	0.10	124.2	0.20	71.3	69.6

08/12/2020	100.5	766.4	0.08	0.9	49.58	7.02	10.03	0.30	123.2	0.28	64.4	64.7
09/10/2020	96.4	748.8	-0.16	-0.15	50.01	7.08	10.23	0.20	123.8	0.10	62.1	62.6
10/06/2020	101.3	768.1	0.11	0.11	50.05	6.98	9.95	-0.07	123.5	-0.03	66.7	66.2
11/05/2020	101.5	760.5	0.02	0.01	49.72	6.89	9.97	0.16	123.7	-0.03	62.6	61.7

Oyster River

Date Deployed	DO% adjusted for BP	Baro Press mmHg	Depth m	Depth Offset m	SpCond 50 mS/cm	pH 7	pH 10	Turbidity 0 FNU	Turbidity 124 FNU	Chl 0 DI ug/L	Chl Rhodamine ug/L	Rhodamine Standard ug/L
05/07/2020	99.9	756.4	-0.05	-0.05	49.84	7.24	10.10	0.32	122.8			
06/05/2020	99.8	758.9	-0.01	-0.02	50.07	7.15	10.11	0.30	124.1			
06/25/2020	98.8	757.0			49.96	7.12	10.10	0.01	124.4			
07/30/3030	100.1	756.3	-0.05	-0.05	50.27	7.05	10.03	**6.4**	**81.0**			
08/19/2020	100.3	766.4	0.09	0.09	49.88	6.94	10.00	0.05	123.1			
09/10/2020	99.7	757.6	-0.03	-0.03	49.94	7.08	10.13	0.03	123.5			
10/01/2020	100.8	768.5	0.11	0.12	49.90	7.08	10.05	0.12	123.8			
10/22/2020	100.3	763.9	0.05	0.05	50.20	7.16	10.10	0.20	122.0			
11/10/2020	100.4	759.6	0.00	-0.01	49.87	6.95	9.95	0.04	122.8			

Squamscott River

Date Deployed	DO% adjusted for BP	Baro Press mmHg	Depth m	Depth Offset m	SpCond 50 mS/cm	pH 7	pH 10	Turbidity 0 FNU	Turbidity 124 FNU	Chl 0 DI ug/L	Chl Rhodamine ug/L	Rhodamine Standard ug/L
05/11/2020	99.7	760.9	0.01	0.01	50.01	7.16	10.06	0.20	126.0	0.15	60.9	61.3
06/11/2020	98.6	754.3	-0.08	-0.08	50.19	7.06	10.03	0.10	124.8	0.30	65.9	65.2
07/02/2020	99.8	759.6	0.00	-0.01	49.82	7.10	9.96	0.20	124.7	0.01	63.6	64.7
08/05/2020	99.1	753.5	-0.08	-0.09	50.47	7.03	10.04	0.10	124.1	0.15	67.6	66.8
08/25/2020	99.9	760.2	0.00	0.00	49.69	6.78	9.98	0.05	123.8	0.05	65.5	64.8
09/17/2020	99.8	764.6	0.06	0.06	50.08	6.96	10.03	0.20	123.2	-0.02	63.1	62.3
10/09/2020	101.4	767.7	0.12	0.12	49.81	7.10	10.05	0.26	122.6	0.05	64.6	62.6
11/09/2020	100.1	753.7	-0.09	-0.09	49.70	7.09	10.02	0.16	123.4	-0.05	68.6	67.2

14) Other remarks/notes

Turbidity anomalies – Biological

This type of anomaly includes turbidity readings that are outside of the normal range or greatly elevated above background baseline and unrelated to increased sediment suspension or decreased water column clarity. We believe this data is real and not a sensor malfunction, although not reflective of actual water column turbidity. These extreme values are likely due to biological factors (e.g., fish, crabs, other marine organisms). Our general guideline for flagging single-point spikes which are ≥200 FNU and more than 10 times greater than the surrounding values is to flag the point suspect <1> or to reject <-3> and label it with a turbidity spike [STS] code.

Turbidity anomalies - Suspension

This type of anomaly includes turbidity readings that are either outside the normal range or greatly elevated above background baseline and related to flow or weather-induced suspension. We believe this data is real and not a sensor malfunction, although not reflective of actual water column turbidity. These values are likely due to

floating organic matter (e.g., eelgrass, leaves, detritus) suspended in the water column. Our general guideline for flagging this data is to closely analyze readings that are over 200 FNU and more than 5 times the magnitude of the surrounding values and linked to wind or high/changing water currents. These readings may be declared suspect <1> or rejected <-3> and labeled with a turbidity spike [STS] code.

Chlorophyll fluorescence anomalies
Biofouling, floating detritus, and/or a disturbed bottom can cause chlorophyll fluorescence optical sensors to record values which are outside the normal environmental range. Data points over five times the magnitude of surrounding values may be flagged as suspect <1> and labeled with a chlorophyll spike [SCS] code. Additionally, sustained values over 100 µg/L are considered suspect or rejected unless unusual conditions at the site can be verified. Spikes that exceed 400 µg/L are rejected <-3> and labeled with the [SCS] code.

Many of our sites regularly record chlorophyll-a values exceeding 100 µg/L. Although we suspect that some of these data points are real, a result of fluorescing plankton, we have not yet been able to collect grab samples and perform extractive chlorophyll analysis which validate this high sonde data.

15) Flagged data and other comments

The depth data at the Oyster River and Great Bay site can display a fair bit of variability between deployments. Due to design of our sonde rigs, when swapping the instrument, it is necessary to pull up the entire anchor. Even though we have a GPS waypoint for the site and mark the spot with a temporary float when we pull up the sonde anchor, it is very difficult to return the anchor to exactly the same location. At the Great Bay site this can cause +/- 0.5 meter depth discrepancies between deployments.

Great Bay

05/07/2020 13:45 – 06/05/2020 13:30 <1> [GSM] (CWD)
Logger was deployed at the wrong GPS waypoint at the beginning of the field season. It was situated within 20-30 meters of the correct location. Although data from this period do not show patterns different from following deployments, all data has been labeled suspect. The sonde was placed in the proper location 06/05/2020 14:00.

06/05/2020 13:45 <-3> (CMC)
Sonde was moved approximately 25 meters, to a slightly shallower location. Depth decreased by 0.7 meters.

08/04/2020 06:45 – 08/05/2020 11:45 <-3> [SSD] (CSM)
Towards the end of the deployment, dissolved oxygen values started to drift downwards. When the instrument was retrieved, there was a heavy algal layer on the sensor bodies and sonde guard, in addition to a 3-inch fish inside of the sonde guard. The sensor post-calibrated well within range.

<1> <-3> [SBO] [SWM] (CSM)
10/06/2020 23:45 – 10/07/2020 06:45
10/08/2020 11:30 – 13:30
10/13/2020 18:30 – 19:15
10/19/2020 17:15 – 23:15
10/20/2020 13:00 – 15:45
10/21/2020 01:45 – 08:30
We believe the central wiper malfunctioned repeatedly during this deployment. This may have caused the wiper to park over or partially over the chlorophyll and/or turbidity sensor faces causing abrupt spikes in these parameters. In addition, when the sonde was retrieved, the wiper brush was missing. The light biofouling on the sensor faces may have contributed to some of the increased values. Furthermore, October 13-17, 2020, approximately 3-4 inches of rain fell and there were high winds. Despite these impacts, turbidity and chlorophyll data at the end of this deployment transitioned well with the beginning of the next deployment

though. This indicates to us that the wiper issues were intermittent, and that biofouling may have played a lesser role.

12/01/2020 00:00 – 14:00 <1> [SCS] (CSM)
Two inches of rain fell 11/30 – 12/01/1010. In addition, there were wind gusts up to 35mph. This rain event likely disturbed the sediments around the sonde.

Lamprey River

07/01/2020 02:45 – 07/03/2020 07:15 <0> [GSM] (CRE)
Three to four inches of rain fell 06/29/2020 and 06/30/2020. Much of this occurred in very short periods of time as heavy downpours. This caused dramatic swings in specific conductance and salinity over the following days. Dissolved oxygen and temperature were also affected but to a lesser degree.

Oyster River

07/14/2020 09:45 – 10:15 <0> (CSM)
07/16/2020 00:00 – 00:45 <0> (CSM)
07/16/2020 11:15 – 11:45 <0> (CSM)
07/17/2020 01:15 – 01:30 <0> (CSM)
07/18/2020 01:15 – 01:45 <0> (CSM)
07/18/2020 13:45 – 14:15 <0> (CSM)
07/19/2020 02:30 – 07/30/2020 09:15 <1> (CSM)
During the second half of the deployment, pH and dissolved oxygen values started to drift downwards. Field logs do not note any sort of fouling presence. The dissolved oxygen cap and pH tip were older although both calibrated and post-calibrated fine.

We believe the pH and dissolved oxygen values on the high end of the range are fairly reliable. Values at the low end of the range were most affected. We suggest that the low pH and dissolved oxygen data are valid but perhaps an artifact of the sonde rig location for this deployment as the trend was resolved when the sonde was replaced.

During these periods, pH and dissolved oxygen values plummeted rapidly during ebbing mid-tide but then spiked back up equally as quickly. These fluctuations occurred in a 30-45 minute time window. The sonde is located in a shallow mudflat area next to a boat channel. It seems that as the tide started to drop, the moving water was flowing only in the channel but when the tide got low enough, the water pulled away from the sonde quickly causing the decrease in values. As the water around the sonde stabilized, the pH and dissolved oxygen rebounded.

08/11/2020 09:15 – 08/19/2020 10:45 <-3> [SPC] (CBF)
Turbidity post calibration was out of range 6.4@0 and 81.0@124. The sensors and sonde guard were fouled with tunicates. Sensor faces were moderately fouled as the wiper did not work reliably. In addition, the wiper brush was very splayed.

08/19/2020 11:00 – 09/11/2020 09:15 <0> [GSM] (CWD)
When the sonde was deployed 08/19/2020 11:00, the sonde anchor was accidentally placed in a slightly different location, 0.75 meters shallower than previous deployments. It stayed at this location through the end of the deployment and for the first day of the following deployment. It was moved to the correct depth 09/11/2020 09:30.

<-3> [GOW] (CSM)
08/20/2020 07:45 – 08:30

08/21/2020 08:30 – 09:15
08/22/2020 09:30 – 09:45
Because datalogger was deployed 0.75 meters shallower than normal 08/19/2020 11:00, three out-of-water incidents occurred. All data associated with these events were rejected.
<0> [GSM]
08/22/2020 22:00
08/23/2020 10:15 – 10:30
08/23/2020 23:00 – 23:15
08/31/2020 06:00 – 06:15
09/11/2020 00:30 – 01:45
The shallow placement of the sonde, in conjunction with very low tides, impacted this data. The sensors did not come out of the water although it is likely that the sensor faces may have been just below the surface of the water causing instability in the output.

Squamscott River

07/21/2020 07:15 – 08/05/2020 12:30 <1> [SSD] (CBF)
Towards the end of the deployment, dissolved oxygen values started to drift downwards, particularly at the low end of the range. We suspect that this may have been due to biofouling. The sensor bodies and sonde guard were heavily fouled with hydroids when the sonde was retrieved although the sensor faces were clean, and the central wiper brush parked correctly. We believe the dissolved oxygen values on the high end of the range are fairly reliable.

All sites

The following are 2020 daily precipitation totals >10.2 mm (0.4 inches) recorded at the Great Bay NERR weather station in Greenland, NH. Note that significant rainfall amounts can affect all measured parameters, most noticeably salinity, turbidity, pH, and occasionally dissolved oxygen. Rainfall exceeding 1 inch in a day or consecutive days of rain often cause specific conductance/salinity in the riverine sites to drop to zero.

Date	Total Daily Precip (mm)
01/25/2020	32.0 (Snow)
02/07/2020	13.7 (Snow)
02/27/2020	22.9 (Snow)
03/23/2020	22.9 (Snow/rain)
03/29/2020	17.0
04/27/2020	20.6
05/01/2020	20.6
06/24/2020	10.7
06/29/2020	31.5
06/30/2020	64.5
07/13/2020	21.3
08/19/2020	20.3
08/23/2020	11.7
08/29/2020	29.0
09/10/2020	12.4
09/30/2020	13.2
10/13/2020	41.9
10/16/2020	10.9
10/17/2020	32.0
10/29/2020	18.8
11/01/2020	10.4

11/23/2020	48.0
11/26/2020	14.5
11/30/2020	38.1
12/01/2020	10.9
12/05/2020	54.6
12/25/2020	24.9

Data are missing due to equipment or associated specific probes not being deployed, equipment failure, time of maintenance or calibration of equipment, or repair/replacement of a sampling station platform. Any NANs in the dataset stand for “not a number” and are the result of low power, disconnected wires, or out of range readings. If additional information on missing data is needed, contact the Research Coordinator at the reserve submitting the data.

Attachment 3

Calibration and Field Logs for Stations
GRBCR, GRBGBE, GRBULB, GRBUPR, HHHR

10/3/19

NERRS SWMP Water Quality Calibration Log

CR050720

Reserve: | Station Name: | CDMO Raw File Name:

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde			pH	16M102424	
Vented		Model Number	RP DO		
Nickname			ODO	16M101432	
			Turbidity	16M101480	
16M102173			Conductivity	16M102844	
			Chlorophyll	16M100739	
			EXO Wiper	17E101859	

Datasonde Maintenance

Date of Calibration: 5/6/20 (mm/dd/yyyy) | Technician(s): LM

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced				Wiper parks 180° from optics			
Batteries Replaced				DO/ODO membrane replaced			
Format Flash Disk				Membrane integrity test			

Comments: ~~FDOM 16M102424~~ 16L103565 New DO cap 20C201061

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics
Standards	Before Cal	Calibrated	Error	5/27/20		Pre-Deployment
Temp 23.65	23.64			Check Date		RP DO chrg (range 25-75)
RP % DO @ 100% sat	%	%		%	%	RP DO gain (0.7-1.4)
BP @ cal (Rapid Pulse)	mm Hg					Optical DO gain (600: 0.7-1.4 EXO: 0.87-1.25) 1.08
Optical %DO @ 100% sat 100.3	99.6			101.5	%	RP DO warm up test (Δv hi)
BP @ Cal (Optical) 756.8	mm Hg			764.3 mm Hg	100.6	Cell const [6600: 4.6-5.45 EXO: 5.05-5.95 WPD EXO: 0.419-0.519] 0.547
Baro Pres (Depth Calib) 756.8	mm Hg	(760.0 for vented sonde)		764.3 mm Hg	(760.0 for vented)	pH 7 (0 +- 50 mV) -25.28
Depth 0.0 offset -0.28	-0.04			0.048	0.058	pH 10 (-180 +- 50 mV) -200.14
Station Offset						pH 4 (+180 +- 50 mV)
Level 0.0 offset					% offset	Calculated pH slope (-155 at nernst) 177.86
SpCond mS/cm 47.64	mS/cm 50			50.20		(-4.7 will result in negative slope)
ph 7	6.917	7		7.00		Post-Deployment
ph 10	10.07	10		9.68		RP DO chrg (range 25-75)
ph 4						RP DO warm up test (Δv hi)
Turb NTU FNU	0.0 NTU FNU	0	NTU FNU	0.1 NTU FNU		pH 7 (0 +- 50 mV) -22.5
Turb NTU FNU	19.98 NTU FNU	124.07	NTU FNU	123 NTU FNU		pH 10 (-180 +- 50 mV) -184.2
Rhodamine WT Temp	°C			°C		pH 4 (+180 +- 50 mV)
Chl (0) 0.0 ug/L	ug/L		ug/L	ug/L		Calculated pH Slope (-155 at nernst) 158.7
Chl (118) 12.5 ug/L	ug/L		ug/L	ug/L		
Battery voltage 6.4	V	(remove ext power 6.70 volts)		5.10 V	(remove ext power)	

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (STD)	hh:mm (24hr)
Duration	days	sonde file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free memory (status)	yes (k) or no
Parameters recorded					
Temp		Sp Cond		Salinity	
DO % sat		DO Conc		Depth/Level	
pH		Turbidity		Chlorophyll	
		pH mV		Battery Voltage	

Comments-Pre:

Comments-Post: pH @ 10 low - probe almost out of range

7.10 181.9 22.5 15.8

NERRS SWMP Water Quality Field Log

Reserve: Great Bay | Station Name: CR | File Name: ~~CR050720~~ CR050720

Deployment Information

Date Deployed: 5/7/20 (mm/dd/yyyy) | Time: 11:00 (hh:mm (24hr)) | White Towel: Yes

Technician(s): LM, JH | Sonde ID #: ~~16M102173~~

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc	mg/L
Salinity	ppt	Other	

Comments: 1st deployment

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: | Duration: | Maintenance:

Comments

Retrieval Information

Date Retrieved: 5/27/2020 (mm/dd/yyyy) | Time: 11:20 (hh:mm (24hr)) | White Towel: yes

Technician(s): J.H. | Sonde ID #:

Field Data:

Water Temp	17.4 °C	DO Percent	89.0 %
Sp Cond	mS/cm	DO Conc	7.21 mg/L
Salinity	16.28 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Clean

File Retrieval

Sonde Filename: | Print Graph: | Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: CR052720

Datasonde Maintenance

Date of Calibration: 5/26/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	16J100918	DO	16M101436
pH	16M103217	Conductivity	16J100642 ✓
Turbidity	16J100302	Chlorophyll	16M100743
		fDOM	16M100185

Comments Wiper

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment			Post-Deployment		Sensor Diagnostics
	Standards	Before Cal	Calibrated	Error			Pre-Deployment
Temp	20.6	20.58					
%DO @ 100% sat		102.7	100.8		98.6		DO chrg (range 25-75)
Baro. Pres. (DO Calib)		766.3 mm Hg	100.8		752.9 mm Hg	99.1	DO gain (0 8-1 7) 1.04
Baro. Pres. (Depth Calib)		766.3 mm Hg	(760 0 for vented sonde)		752.9 mm Hg	(760 0 for vented)	DO warm up test (hi/lo)
Depth		0.23 m offset	0.09 m		0.098 m offset		Cell const (4.6-5.45) 0.471
SpCond		49.83 mS/cm	50 mS/cm		50.116 mS/cm	-0.097	pH 7 (0 +/- 50 mV) -19.25
pH 7		6.95	7		7.18		pH 10 (-180 +/- 50 mV) -194.31
pH 10		10.04	10		10.11		pH 4 (+180 +/- 50 mV)
pH 4							Calculated pH slope 175.06
Turb	NTU	0.04 NTU	0 NTU		0.05 NTU		Post-Deployment
Turb	NTU	121.78 NTU	124 NTU		124.4 NTU		DO chrg (range 25-75)
Rhodamine WT Temp		°C			°C		DO warm up test (hi/lo)
Chl fls	0.0	ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV) -29.7
Chl extd		ug/L	ug/L		ug/L	ug/L	pH 10 (-180 +/- 50 mV) -201.9
							pH 4 (+180 +/- 50 mV)
Battery voltage		6.1 V (remove ext. power -650, -6030)			5.1 V (remove ext. power)		Calculated pH slope 172.2

Wiper 1:20

Programming

Interval	_____ min	Start date	_____ mm/dd/yyyy	Start time (std time)	_____ hh:mm:ss
Duration	_____ days	Sonde file name	_____	Battery life	_____ days
Free memory	_____ days	Set clock (status)	_____	Free bytes (status)	_____ K

Parameters recorded: _____

Comments - Pre: 2 yrs on the DO cap (180)

Uncal chl next cal (ug/L)

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: CR File Name: _____

Deployment Information

Date Deployed: 5/27/20 mm/dd/yyyy Time: 11:25 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	17.4 °C	DO Percent	89.7 %
Sp Cond	mS/cm	DO Conc.	7.81 mg/L
Salinity	16.28 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 6/24/20 mm/dd/yyyy Time: 12:00 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	24.7 (x 21.6)	DO Percent	100.7 % (x 82.3)
Sp Cond	LOW mS/cm (x 57.32)	DO Conc.	7.33 mg/L (x 6.78)
Salinity	33.50 ppt (x 32.28)	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Small barnacles on sensor bodies. light mud layer on det. Faces clean.

File Retrieval Wiper misparked?

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: CR062420

Datasonde Maintenance

Date of Calibration: 6/24/20 mm dd yyyy Technician(s): LM

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	17F103174	DO	14G101676
pH	16M103220	Conductivity	16M100102
Turbidity	16M101849	Chlorophyll	16M101055
		fDOM	16C103566

Comments: wipers 14A100008

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment			Post-Deployment		Sensor Diagnostics
	Standards	Before Cal	Calibrated	Error			Pre-Deployment
Temp °C	22.9	99.6	99.5	23.05	99.9		DO chrg (range 25-75)
%DO (100% Sat)							DO gain (0 8-1 7) 1.01
Baro. Pres. (DO Calib)		756.1 mmHg	99.5		760.5 mmHg	100.1	DO warm up test (hi lo)
Baro. Pres. (Depth Calib)		756.1 mmHg	(760.0 for vented sonde)		760.5 mmHg	(760.0 for vented sonde)	Cell const (4 6-5 45) 0.47
Depth	offset	-0.20 m	-0.054		0.007	offset	pH 7 (0 +- 50 mV) -13.74
Sp Cond	mS/cm	50.17 mS/cm	50 mS/cm		50.24 mS/cm	0.007	pH 10 (-180 +- 50 mV) -184.4
pH 7		7.15	7		7.00		pH 4 (-180 +- 50 mV)
pH 10		10.05	10		9.95		Calculated pH slope 170.6
pH 4							Post-Deployment
Turb	NTU	-0.06 ft.	0	NTU	0.2 NTU		DO chrg (range 25-75)
Turb	NTU	122.21 ft.	124	ft.	124.7		DO warm up test (hi lo)
Rhodamine WT Temp				°C			pH 7 (0 +- 50 mV) -13.8
Chl (0.0)				mg/L			pH 10 (-180 +- 50 mV) -180.6
Chl (user)				mg/L		mg/L	pH 4 (-180 +- 50 mV)
Battery voltage		5.2 measured on power (DO, SDI)			4.9 measured on power		Calculated pH slope 166.8

Programming

Interval	min	Start date	mm dd yyyy	Start time	hh:mm
Duration	days	Sonde file name		Battery life	days
Free memory	days	Set clock (status)		Free bytes (status)	K

Parameters recorded: _____

Comments - Pre: Used chl ug/L + RFU meas times + BGA

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: CR File Name: _____

Deployment Information

Date Deployed: 6/24/20 mm/dd/yyyy Time: 17:05 SM hh:mm (24hr) White Towel: yes

Technician(s): C.H. Sonde ID #: _____

Field Data:

Water Temp	24.7 °C	DO Percent	100.7 %
Sp Cond	mS/cm	DO Conc.	7.33 mg/L
Salinity	23.50 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 7/22/20 mm/dd/yyyy Time: 10:07 SM hh:mm (24hr) White Towel: yes

Technician(s): C.H. Sonde ID #: _____

Field Data:

Water Temp	24.4 °C	DO Percent	87.7 %
Sp Cond	mS/cm	DO Conc.	6.25 mg/L
Salinity	20.71 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Medium Biofouling, No overlap. Light mud layer on sensors, bodies. Faces clear. Brush OK

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: CR072320

Datasonde Maintenance

Date of Calibration: 7-22-20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	16M102176	DO	17L100139
pH	16M103219	Conductivity	16M100103
Turbidity	16M101479	Chlorophyll	16M100742 ✓

Comments New pH HA 20E100618 ODOM 17F101082
Wiper 16M101299

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment	Sensor Diagnostics Pre-Deployment
%dO = 100% sat		99.8	100.4		99.2 %	DO chrg (range 25-75):
Baro. Pres. (DO Calib)		762.8 mHg	100.4		758.4 99.8	DO gain (0.8-1.7): 1.06
Baro. Pres. (Depth Calib)		762.8 mHg			758.4 (Set 0 for vented)	DO warm up test (hi lo):
Depth	offset	-0.10 m	0.038		-0.022 offset	Cell const (4.6-5.45): 0.47
SpCond	mS/cm	50.15 mS/cm	50 mS/cm		50 mS/cm -0.022	pH 7 (0 +- 50 mV): -4.31
pH 7		6.39	7		7.05	pH 10 (-180 +- 50 mV): -178.39
pH 10		9.41	10		10	pH 4 (+180 +- 50 mV):
pH 4						Calculated pH slope: 174.17
Turb	NTU	-0.03 ft	0 NTU		0.05 NTU	**Post-Deployment**
Turb	NTU	125.2 ft	124 NTU		124.1 NTU	DO chrg (range 25-75):
Rhodamine WT Temp		°C			°C	DO warm up test (hi lo):
Chl @0	0.0 ug/L	ug/L	ug/L		ug/L	pH 7 (0 +- 50 mV): -7.1
Chl (title)	ug/L	ug/L	ug/L		ug/L ug/L	pH 10 (-180 +- 50 mV): -177.3
						pH 4 (+180 +- 50 mV):
Battery voltage		5.3 V (powered on)			4.8 V (powered on)	Calculated pH slope: 170.2

Temp 24.1 23.88

Programming

Interval	min	Start date	mm/dd/yyyy	Start time	hh:mm:ss
Duration	days	Sonde file name		Battery life	days
Free memory	days	Set clock (status)		Free bytes (status)	k

Parameters recorded: _____

Comments - Pre: Did not cal chl or fDOM

Comments - Post: _____

NERRS SWMP Water Quality Field Log

CR

Reserve: Great Bay Station Name: _____ File Name: _____

Deployment Information

Date Deployed: 7/23/20 mm/dd/yyyy Time: 1010 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	24.7 °C	DO Percent	83.1 %
Sp Cond	mS/cm	DO Conc.	6.25 mg/L
Salinity	20.3 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 8/17/20 mm/dd/yyyy Time: 17:30 hh:mm (24hr) White Towel: yes

Technician(s): JC, HL Sonde ID #: _____

Field Data:

Water Temp	21.8 °C	DO Percent	85.0 % 6.30
Sp Cond	mS/cm	DO Conc.	mg/L
Salinity	28.90 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Modiolus Biofilm
Heavy tunicate layer on inside of guard & sensors today

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments Bunch at bottom of wiper & around garage.

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: CR081720

Datasonde Maintenance

Date of Calibration: 8/13/20 mm dd yyyy Technician(s): LM

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	14A100674	DO	17F102914
pH	14E100009 — 14E100909?	Conductivity	16M100100
Turbidity	17F103581	Chlorophyll	16M100740 ✓

Comments: Wiper 16M101304 fDOM 16M101490

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Standards	Pre-Deployment: Before Cal	Pre-Deployment: Calibrated	Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment	
%DO = 100% sat	100.1 %	100.5	____	100.4	____ %	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	763.3 mm Hg	100.4		763.4	100.4	DO gain (0.8-1.7)	1.07
Baro. Pres. (Depth Calib)	763.3 mm Hg (sea level corrected)			763.4 (Corrected to sea level)		DO warm up test (hi lo)	
Depth ____ mbd	0.09	0.045	____	0.042	____ mbd	Cell const (4.6-5.45)	0.47
SpCond ____ mS/cm	49.87 mS/cm	50 mS/cm	____	50.10	0.046	pH 7 (0 +- 50 mV)	-30.16
pH 7 ____	7.06	7	____	6.99		pH 10 (-180 +- 50 mV)	-201.29
pH 10 ____	10.01	10	____	10.07		pH 4 (+180 +- 50 mV)	
pH 4 ____			____			Calculated pH slope	171.18
Turb ____ NTU	-0.05	0 NTU	____	0.1 NTU		**Post-Deployment**	
Turb ____ NTU	124.04	124 NTU	____	123.8		DO chrg (range 25-75)	____
Rhodamine WT Temp	____ C			____ C		DO warm up test (hi lo)	
Chl 0.0 ug/L	____ ug/L	____ ug/L	____	____ ug/L		pH 7 (0 +- 50 mV)	-29.7
Chl ____ ug/L	____ ug/L	____ ug/L	____	____ ug/L	____ ug/L	pH 10 (-180 +- 50 mV)	-203.1
						pH 4 (+180 +- 50 mV)	
Battery voltage	5.1 V (numerical part only)			4.8 V (numerical part only)		Calculated pH slope	172.4
Temp	25.0	25.01					

Programming

Interval ____ min Start date ____ mm/dd/yyyy Start time (military) ____ hh:mm

Duration ____ days Sonde file name ____ Battery life ____ days

Free memory ____ MB Set clock (status) ____ Free bytes (status) ____ %

Parameters recorded: _____

Comments - Pre: Uncal turbidity next time Does not need fDOM cal
DO cap 3 yrs old

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: CR

Deployment Information

Date Deployed: 8/17/20 mm/dd/yyyy Time: 1237 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	21.8 °C	DO Percent	85.0 %
Sp Cond	____ mS/cm	DO Conc	6.30 mg/L
Salinity	28.90 ppt	Other	____

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: ____ Duration: ____ Maintenance: ____

Comments _____

Retrieval Information

Date Retrieved: 9/14/2020 mm/dd/yyyy Time: 1415 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: ____

Field Data:

Water Temp	19.11 °C	DO Percent	97.7 %
Sp Cond	____ mS/cm	DO Conc	7.13 mg/L
Salinity	25.16 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde/Guard	____	External Screen	____
Temp/Cond	____	Dissolved Oxygen	____
pH	____	Turbidity	____

Comments Heavy brocade layer on sensor boticos guard. Fouling dea

File Retrieval

Sonde Filename: ____ Print Graph: ____ Probe Malfunction: ____

Comments Wiper slightly misparked but not over sensor

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: CR091420

Datasonde Maintenance

Date of Calibration: 9/11/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	16M102174	DO	16M101434
pH	17E100006	Conductivity	16F100690
Turbidity	16M101482	Chlorophyll	17E102112

Comments Wiper 16F100197 DOM 16M100183

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment	
%DO = 100% sat	101 %	100.9	____	101.1	____ %	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	767 mmHg	100.9		770.1	101.3	DO gain (0.8-1.7)	1.11
Baro. Pres. (Depth Calib)	769 mmHg			770.1		DO warm up test (ok)	
Depth ____ m	0.19	0.095	____	0.141	____ m	Cell const (4.6-5.45)	0.47
SpCond ____ mS/cm	49.44	50	____	50.18	0.137	pH 7 (0 +- 50 mV)	-17.2
pH 7 ____	7.1	7	____	6.88		pH 10 (+180 +- 50 mV)	-188.09
pH 10 ____	10.12	10	____	10.00		pH 4 (+180 +- 50 mV)	
pH 4 ____			____			Calculated pH slope	170.9
Turb ____ NTU	0.14	0	____	0.33		Post-Deployment	
Turb ____ NTU	123.24	124	____	125.5		DO chrg (range 25-75)	____
Rhodamine WT Temp	____ °C			____ °C		DO warm up test (ok)	
Chl-a 0.0 ug/L	____ ug/L	____ ug/L	____	____ ug/L		pH 7 (0 +- 50 mV)	-10.5
Chl-a ____ ug/L	____ ug/L	____ ug/L	____	____ ug/L	____ ug/L	pH 10 (+180 +- 50 mV)	-188.8
						pH 4 (+180 +- 50 mV)	
Battery voltage	6.1 (replace batteries if < 6.0)			5.1 (replace batteries if < 5.5)		Calculated pH slope	178.3

Temp 22.3 22.29

Programming

Interval ____ min Start date ____ (mm dd yyyy) Start time (military) ____ (hhmm)

Duration ____ days Sonde file name ____ Battery life ____ days

Free memory ____ % Set clock (status) ____ Free bytes (status) ____ %

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: Turb a little high

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: CR

Deployment Information

Date Deployed: 9/14/20 mm dd yyyy Time: 1423 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	21.1 °C	DO Percent	93.7 %
Sp Cond	____ mS/cm	DO Conc.	7.73 mg/L
Salinity	25.16 ppt	Other	____

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: ____ Duration: ____ Maintenance: ____

Comments _____

Retrieval Information

Date Retrieved: 10/12/2020 mm dd yyyy Time: 12:00 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	14.5 °C	DO Percent	96.7 %
Sp Cond	____ mS/cm	DO Conc.	8.77 mg/L
Salinity	27.27 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde Guard	____	External Screen	____
Temp Cond	____	Dissolved Oxygen	____
pH	____	Turbidity	____

Comments _____

File Retrieval

Sonde Filename: ____ Print Graph: ____ Probe Malfunction: ____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: GR10220

Datasonde Maintenance

Date of Calibration: 10/9/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	14A100675	DO	19A100090
pH	11F101760	Conductivity	16M100099
Turbidity	13M102200	Chlorophyll	16M101053

Comments: Wiper 19A100093 ZOOM 16L103564

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment	
*eDO (~100% sat)	100.2	100.7	____	99.8	____ %	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	765.5 mmHg	100.7		759.3 mmHg	99.9	DO gain (0.8-1.2)	1.04
Baro. Pres. (Depth Calib)	765.4 mmHg			759.2 mmHg		DO warm up test (0-30)	
Depth	____ m	0.08	0.073	____	-0.016 ____ m	Cell const (4.6-5.4)	0.47
SpCond	____ mS/cm	50.16 mS/cm	50 mS/cm	____	49.84 mS/cm -0.011	pH 7 (0 +/- 50 mV)	-30.6
pH 7	____	6.98	7	____	7.15	pH 10 (-148 +/- 50 mV)	-206.3
pH 10	____	10.02	10	____	10.07	pH 4 (+180 +/- 50 mV)	
pH 4	____					Calculated pH slope	175.69
Turb	____ NTU	0.01 NTU	0 NTU	____	0 NTU	Post-Deployment	
Turb	____ NTU	124.61	124	____	122.6	DO chrg (range 25-75)	____
Rhodamine WT Temp	____ °C	____	____	____	____ °C	DO warm up test (0-30)	
Chl a DO	____ µg/L	____ µg/L	____ µg/L	____	____ µg/L	pH 7 (0 +/- 50 mV)	-39.5
Chl a ss	____ mg/L	____ mg/L	____ mg/L	____	____ mg/L ____ mg/L	pH 10 (-148 +/- 50 mV)	-210.5
						pH 4 (+180 +/- 50 mV)	
Battery voltage	5.2 V (>6.5 good, >6 fair, <6 poor)			4.9 V (>6.5 good, >6 fair, <6 poor)		Calculated pH slope	171.0
Temp	24.8	24.74					

Programming

Interval	____ min	Start date	____ (mm/dd/yyyy)	Start time (military)	____ (hhmm)
Duration	____ days	Sonde file name	____	Battery life	____ days
Free memory	____ days	Set clock (station)	____	Free bytes (station)	____ %

Parameters recorded: _____

Comments - Pre: Tush @ 124 a little unstable - old probe

Comments - Post: SpC a little low

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: GR

Deployment Information

Date Deployed: 10/12/20 mm dd yyyy Time: 1210 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	14.5 °C	DO Percent	96.7 %
Sp Cond	____ mS/cm	DO Conc.	8.33 mg/L
Salinity	27.23 ppt	Other	____

Comments: _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: ____ Duration: ____ Maintenance: ____

Comments: _____

Retrieval Information

Date Retrieved: 11/11/20 mm dd yyyy Time: 1405 hh:mm (24hr) White Towel: yes

Technician(s): DM Sonde ID #: _____

Field Data:

Water Temp	10.4 °C	DO Percent	97.5 %
Sp Cond	____ mS/cm	DO Conc.	9.54 mg/L
Salinity	20.01 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde Guard	____	External Screen	____
Temp/Cond	____	Dissolved Oxygen	____
pH	____	Turbidity	____

Comments: 1400 Divers 2 3cm crabs in ~~sonde~~ guard Sonde clean Brush off There was a lot of loose dirt on

File Retrieval

Sonde Filename: ____ Print Graph: ____ Probe Malfunction: ____

Comments: leaves + organic matter stuck on a branch which was stuck on the surface float

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: CR111120

Datasonde Maintenance

Date of Calibration: 11/11/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	16M102177	DO	16M101431
pH	16M103219	Conductivity	16J100643
Turbidity	18K105377	Chlorophyll	16M101059

Comments 4-pin 16M101301 4 pin 16M100186

Pre/Post Deployment Calibration: (turn on pH mV and DO Chg in Report menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment		Sensor Diagnostics
							Pre-Deployment
%DO – 100% air		100.5	100.2	____	100.8	____	DO chrg (range 25-75)
Baro. Pres. (DO Calib)		761.5	100.2	____	760.0	100	DO gain (range 0.8-1.2) 1.08
Baro. Pres. (Depth Calib)		761.2			760.0		DO warm up test (circle)
Depth	____	0.25	0.016	____	0.005	____	Cell const (4.6-5.4) 0.47
Sp Cond	____	49.93	50	____	49.96	0.00	pH 7 (±30 mV) -11.26
pH 7	____	7.11	7	____	6.99		pH 10 (±15 mV) -182.96
pH 10	____	10.04	10	____	9.97		pH 4 (±15 mV)
pH 4	____			____			Calculated pH slope 171.76
Turb	0	0.02	0	____	0.37		**Post-Deployment**
Turb	124	123.78	124	____	124.80		DO chrg (range 25-75) ____
Rhodamine WT Temp							DO warm up test ____
Chl	0.0	____	____	____	____	____	pH 7 (±30 mV) -10.6
Chl	____	____	____	____	____	____	pH 10 (±15 mV) -181.4
							pH 4 (±15 mV)
Battery Voltage		6.2			5.3		Calculated pH slope 170.8

Temp 23.75 23.81

Programming

Interval _____ Start date _____ Start time _____

Duration _____ Sonde file name _____ Battery (V) _____

Free memory _____ Set clock (Y/N) _____ Free Sonde memory _____

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: CR

Deployment Information

Date Deployed: 11/11/20 mm/dd/yyyy Time: 1420 hh:mm (24hr) White Towel: yes

Technician(s): LM Sonde ID #: _____

Field Data:

Water Temp	10.4 °C	DO Percent	97.3 %
Sp Cond	____ mS/cm	DO Conc	9.59 mg/L
Salinity	20.01 ppt	Other	____

Comments 1400 overlap

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 12/9/20 mm/dd/yyyy Time: 1415 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	____ °C	DO Percent	____ %
Sp Cond	____ mS/cm	DO Conc	____ mg/L
Salinity	____ ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	____	External Screen	____
Temp/Cond	____	Dissolved Oxygen	____
pH	____	Turbidity	____

Comments Sonde ~ 9.2 deep when retrieved
large branch stuck on rope/wig. Plant matter in guard.

File Retrieval

Sonde Filename: _____ Print Graph: ____ Probe Malfunction: ____

Comments 3 cm mud in guard
Wiper OK.

NERRS SWMP Water Quality Calibration Log

GBE042320

Reserve: | Station Name: | CDMO Raw File Name:

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number		Serial Number	Model Number
Datasonde			pH	16M110321 7	
Vented		Model Number	RP DO		
Nickname			ODO	16M110436	
16J100910			Turbidity	16J100302	
			Conductivity	16J100642	
			Chlorophyll	16M100343	
			EXO Wiper	14J101317	

Datasonde Maintenance

Date of Calibration: mm/dd/yyyy | Technician(s):

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced				Wiper parks 180° from optics			
Batteries Replaced				DO/ODO membrane replaced			
Format Flash Disk				Membrane integrity test			

Comments: from 16M100185

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			Pre-Deployment	
Temp 04.3	29.22			Check Date: 5/20/20			
RP % DO @ 100% sat						RP DO chrg (range 25-75)	
BP @ cal (Rapid Pulse)						RP DO gain (0.5-1.4)	
Optical %DO @ 100% sat	99.0	98.6		103.3		Optical DO gain (pre00 0.7-1.4; EXO 0.87-1.25)	1.06
BP @ Cal (Optical)	749.2			772.3	101.6	RP DO warm up test (Pass/No)	
Baro Pres (Depth Calib)	755.8	-R.258		772.3	(Pre0 0 for vented)	Cell const (pre00 4.6-5.45; EXO 5.05-5.95; WPD EXO 0.419-0.519)	0.447
Depth offset	-0.08	-0.06		0.170	0.167	pH 7 (0 +/- 50 mV)	-21.9
Station Offset						pH 10 (-180 +/- 50 mV)	-191.4
Level offset						pH 4 (+180 +/- 50 mV)	
SpCond mS/cm	50	50		50.11		Calculated pH slope (<135 is suspect)	169.5
ph 7	7.13	7		7.00		(A 7 will result in negative slope)	
ph 10	9.96	10		10.03			
ph 4						Post-Deployment	
Turb NTU FNU	+0.1	0		0.9		RP DO chrg (range 25-75)	
Turb NTU FNU	56.1	124		123.6		RP DO warm up test (Pass/No)	
Rhodamine WT Temp °C						pH 7 (0 +/- 50 mV)	-20.1
Chl (0) 0.0 ug/L						pH 10 (-180 +/- 50 mV)	-200.7
Chl (118) 155.8 ug/L						pH 4 (+180 +/- 50 mV)	
Battery voltage V (remove ext power-6V) (6.0)				4.6 (remove ext power)		Calculated pH Slope (<135 is suspect)	177.6

Programming

Interval min		Start date mm/dd/yyyy		Start time (STD) 24hr:mm:ss	
Duration days		sonde file name		Battery life days	
Free memory days		Set clock (status) Y or N		Free memory (status) bytes (k) or %	
Parameters recorded					
Temp		Sp Cond		Salinity	
DO % sat		DO Conc		Depth/Level	
pH		Turbidity		Chlorophyll	
		pH mV		Battery Voltage	

Comments-Pre:

Comments-Post: DO high, Turb @ 0 high bulb DJ may have been dirty

---

NERRS SWMP Water Quality Field Log

GBE042320

Reserve: Great Bay | Station Name: | File Name:

Deployment Information

Date Deployed: 4/23/20 mm/dd/yyyy | Time: hh:mm (24hr) | White Towel: yes

Technician(s): | Sonde ID #:

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc	mg/L
Salinity	ppt	Other	

Comments: 1st deployment

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: | Duration: | Maintenance:

Comments

Retrieval Information

Date Retrieved: 5/20/20 mm/dd/yyyy | Time: 15:55 hh:mm (24hr) | White Towel: yes

Technician(s): JH LW | Sonde ID #:

Field Data:

Water Temp	16.6 °C	DO Percent	114.6 %
Sp Cond	mS/cm	DO Conc	10.30 mg/L
Salinity	10.44 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Light layer mud on sensor bodies. Probes clean - wiped off.

File Retrieval

Sonde Filename: | Print Graph: | Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: GBE052020

Datasonde Maintenance

Date of Calibration: 5/18/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	14A1006675	DO	19A100090
pH	17E101760	Conductivity	16M100099
Turbidity	13M102200	Chlorophyll	16M101054

Comments: EDom 16M101489 Wiper 13G101115

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment 6/19/20	Sensor Diagnostics
Temp 23.75	23.71				**Pre-Deployment**
%dDO = 100% sat	100.8	100.9	___	99.2 ___ %	DO chrg (range 25-75)
Baro. Pres. (DO Calib)	767.0 mm Hg	100.9	___	761.2 mm Hg 100.2	DO gain (0.8-1.7) 1.05
Baro. Pres. (Depth Calib)	767.0 mm Hg			761.2 mm Hg	DO warm up test (hi/lo)
Depth ___ offset	0.14 m	0.10	___	0.018 ___ offset	Cell const (4.6-5.45) 0.47
SpCond ___ mS/cm	49.89 mS/cm	50 mS/cm	___	49.95 mS/cm 0.016	pH 7 (0 +/- 50 mV)
pH 7 ___	7.01	7	___	7.12	pH 10 (-180 +/- 50 mV) -22.48
pH 10 ___	10.06	10	___	10.10	pH 4 (+180 +/- 50 mV) -196.73
pH 4 ___					Calculated pH slope 174.125
Turb ___ NTU	-0.02 NTU	0 NTU	___	6.8 NTU	**Post-Deployment**
Turb ___ NTU	124.45 NTU	124 NTU	___	135.8 NTU	DO chrg (range 25-75) ___
Rhodamine WT Temp		°C			DO warm up test (hi/lo)
Chl (0.0)	___ ug/L	___ ug/L	___ ug/L	___ ug/L	pH 7 (0 +/- 50 mV) -29.6
Chl (___)	___ ug/L	___ ug/L	___ ug/L	___ ug/L ___ ug/L	pH 10 (-180 +/- 50 mV) -203.4
					pH 4 (+180 +/- 50 mV)
Battery voltage	6.1 V (between ext power ON and OFF)			5.0 V (between ext power)	Calculated pH slope 173.8

Wiper 1.20 C1.17

Programming

Interval ___ min Start date ___ mm/dd/yyyy Start time (std time) ___ hh:mm:ss

Duration ___ days Sonde file name ___ Battery life ___ days

Free memory ___ days Set clock (status) ___ Free bytes (status) ___ k

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: Heavy algal/Hor fouling. Faces clean Turbidity high!

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: GBE

Deployment Information

Date Deployed: 5/20/2020 mm/dd/yyyy Time: 16:10 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	16.6 °C	DO Percent	119.6 %
Sp Cond	___ mS/cm	DO Conc	10.32 mg/L
Salinity	20.44 ppt	Other	___

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: ___ Duration: ___ Maintenance: ___

Comments _____

Retrieval Information

Date Retrieved: 6/19/20 mm/dd/yyyy Time: 1430 hh:mm (24hr) White Towel: yes

Technician(s): LM, HP Sonde ID #: _____

Field Data:

Water Temp	23.5 °C	DO Percent	128 %
Sp Cond	44.39 mS/cm	DO Conc	9.24 mg/L
Salinity	28.70 ppt	Other	___

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	___	External Screen	___
Temp/Cond	___	Dissolved Oxygen	___
pH	___	Turbidity	___

Comments 1415 overlap Heavy silt and algae on sonde guard and under bolts. Sensor faces mostly clear but some mud on DO (edge of sensor face)

File Retrieval

Sonde Filename: ___ Print Graph: ___ Probe Malfunction: ___

Comments Hot day

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: GBE061920

Datasonde Maintenance

Date of Calibration: 6/19/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	14A100674	DO	17F102914
pH	14E100909	Conductivity	16M100100
Turbidity	17F103581	Chlorophyll	16M100740

Comments Wiper 16M101304 Baro 16M101493

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment 7/14/20		Sensor Diagnostics Pre-Deployment	
Temp °C	23.5							
%DO (100% sat)		100.2	100.4	23.56	99.3		DO chrg (range 25-75)	
Baro. Pres. (DO Calib) mm Hg		763.0			755.5 mm Hg	99.4	DO gain (0.8-1.7)	1.06
Baro. Pres. (Depth Calib) mm Hg		763.0			755.5 mm Hg		DO warm up test (hr:ss)	
Depth		0 m	0.041 m		-0.059 m		Cell const (4.6-5.45)	0.47
SpCond mS/cm		49.96 mS/cm	50 mS/cm		49.00 mS/cm	-0.662	pH 7 (0 +- 50 mV)	-35.60
pH 7		7.24	7		6.90		pH 10 (-180 +- 50 mV)	-206.04
pH 10		10.07	10		9.84		pH 4 (+180 +- 50 mV)	
pH 4							Calculated pH slope	170.44
Turb NTU		-0.28 NTU	0 NTU		0.4 NTU		**Post-Deployment**	
Turb NTU		124.29 NTU	124 NTU		124.4		DO chrg (range 25-75)	
Rhodamine WT Temp °C					°C		DO warm up test (hr:ss)	
Chl (raw) 0.0 ug/L		ug/L	ug/L		ug/L		pH 7 (0 +- 50 mV)	-29.8
Chl (cal) ug/L		ug/L	ug/L		ug/L	ug/L	pH 10 (-180 +- 50 mV)	-196.4
							pH 4 (+180 +- 50 mV)	
Battery voltage V (enhanced power only)		6.2 V			5.3 V (enhanced power)		Calculated pH slope	167.6

Programming

Interval min		Start date mm/dd/yyyy		Start time hh:mm:ss	
Duration days		Sonde file name		Battery life days	
Free memory days		Set clock (status)		Free bytes (status)	

Parameters recorded: _____

Comments - Pre: Cap 3 yrs old
slow to stabelize @ 124

Comments - Post: SPC low (think standard was off)
pH low
(Sonde post cal'd many days after retrieval 7/9)

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: GBE

Deployment Information

Date Deployed: 6/19/20 mm/dd/yyyy Time: 1420 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	23.5 °C	DO Percent	128.1 %
Sp Cond	49.39 mS/cm	DO Conc.	9.24 mg/L
Salinity	28.70 ppt	Other	

Comments Overlap 1415

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 7/9/20 mm/dd/yyyy Time: 7:00 hh:mm (24hr) White Towel: yes
1400

Technician(s): J. H. Sonde ID #: _____

Field Data:

Water Temp	23.6 °C	DO Percent	107.9 %
Sp Cond	mS/cm	DO Conc.	7.44 mg/L
Salinity	27.80 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	M	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Mostly Biofouling - hydroids on sensor bases & inside guard. Faces clean, wipers OK.

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: GBE 070420

Datasonde Maintenance

Date of Calibration: 7/7/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	16M102177	DO	16M101431
pH	16J101363	Conductivity	16J100643
Turbidity	18K0537?7	Chlorophyll	16M101052

Comments: Wiper 16M101301 fDOM 16M100186

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment
Temp °C	22.6		22.51		22.7		
DO % (100% Sat)		100.9 %	100.6 %		100.1 %	%	DO chrg (range 25-75)
Baro. Pres. (DO Calib)		764.8 mHg	100.6		763.4 mHg	100.4 (760.0 for vented sonde)	DO gain (0.8-1.7) 1.08
Baro. Pres. (Depth Calib)		764.8 mHg	(760.0 for vented sonde)		763.4 mHg	(760.0 for vented sonde)	DO warm up test (hi/lo)
Depth		0.14 m	0.069 m		0.045 m	offset	Cell const (4.6-5.45) 0.47
SpCond		50.1 mS/cm	50 mS/cm		49.6 mS/cm	0.046	pH 7 (0 +/- 50 mV) -28.59
pH 7		7.08	7		7.03		pH 10 (-180 +/- 50 mV) -193.7
pH 10		9.97	10		10.08		pH 4 (+180 +/- 50 mV)
pH 4							Calculated pH slope 165.10
Turb	NTU	-0.01 NTU	0 NTU		0.05 NTU		**Post-Deployment**
Turb	NTU	124.80 NTU	123.97 NTU		125.4 NTU		DO chrg (range 25-75)
Rhodamine WT Temp		°C			°C		DO warm up test (hi lo)
Chl (0)	0.0 ug/L	ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV) -30.3
Chl (100)	ug/L	ug/L	ug/L		ug/L	ug/L	pH 10 (-180 +/- 50 mV) -199.5
							pH 4 (+180 +/- 50 mV)
Battery voltage		5.2 V (removed power 480 mW)			5.0 V (removed power)		Calculated pH slope 169.2

Programming

Interval	mm	Start date	mm/dd/yyyy	Start time (military)	hh:mm:ss
Duration	days	Sonde file name		Battery life	days
Free memory	days	Set clock (status)		Free bytes (status)	K

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: SpC low

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: GBE

Deployment Information

Date Deployed: 7/9/20 mm/dd/yyyy Time: _____ hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc.	mg/L
Salinity	ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 7/16/2020 mm/dd/yyyy Time: 1407 hh:mm (24hr) White Towel: yes

Technician(s): J.H. Sonde ID #: _____

Field Data:

Water Temp	22.9 °C	DO Percent	95.7 %
Sp Cond	mS/cm	DO Conc.	6.99 mg/L
Salinity	30.42 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=spooges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Moderate Biofouling. Lots of tunicates on sensor body + guard. Wiper OK

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: GBE080620

Datasonde Maintenance

Date of Calibration: 8/6/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	16J100910	DO	16M101436
pH	16M103217	Conductivity	16J100643 ✓
Turbidity	16J100302	Chlorophyll	16M100743

Comments: Wiper 14J101317 from 16M100185

Pre/Post Deployment Calibration: (turn on pH mV and DO Chg in Report menu)

	Pre-Deployment			Post-Deployment		Sensor Diagnostics
	Standards	Before Cal	Calibrated	Error			Pre-Deployment
%DO – 100% sat		100.5	100.6		100.1		DO chrg (range 25-75)
Baro. Pres. (DO Calib)		764.3 mm Hg	100.6		760.6 mm Hg	100.3	DO gain (0 to 8.1 ?) 1.05
Baro. Pres. (Depth Calib)		764.3 mm Hg (760 Hg for coast sites)			766.3 mm Hg		DO warm up test (hi lo)
Depth		0.11 m	0.058		0.088		Cell const (4.6-5.45) 0.47
SpCond		50.17 mS/cm	50 mS/cm		49.73 mS/cm	0.086	pH 7 (0 +- 50 mV) -34.78
pH 7		7.10	7		7.22		pH 10 (-180 +- 50 mV) -203.5
pH 10		10.04	10		10.18		pH 4 (+180 +- 50 mV)
pH 4							Calculated pH slope 168.7
Turb	NTU	0.08 NTU	0 NTU		0.25 NTU		Post-Deployment
Turb	NTU	125.0 NTU	124 NTU		123.9		DO chrg (range 25-75)
Rhodamine WT Temp			°C				DO warm up test (hi lo)
Chl a	0.0		µg/L				pH 7 (0 +- 50 mV) -47.0
Chl a	µg/L		µg/L		µg/L	µg/L	pH 10 (-180 +- 50 mV) -262.9
							pH 4 (+180 +- 50 mV)
Battery voltage		6.2 V (minimum per manufacturer)			5.2 V (minimum per manufacturer)		Calculated pH slope 165.9

Temp 23.8 23.62

Programming

Interval	min	Start date	mm/dd/yyyy	Start time	hh:mm
Duration	days	Sonde file name		Battery life	days
Free memory	days	Set clock (status)		Free bytes (status)	%

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: SpC low (Std level may have been low)

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: GBE

Deployment Information

Date Deployed: 8/6/20 mm/dd/yyyy Time: 1415 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	22.4 °C	DO Percent	95.7 %
Sp Cond	mS/cm	DO Conc.	6.91 mg/L
Salinity	30.43 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 8/18/2020 mm/dd/yyyy Time: 1300 1100 CST hh:mm (24hr) White Towel: yes

Technician(s): J. H. Sonde ID #: _____

Field Data:

Water Temp	21.0 °C	DO Percent	109 %
Sp Cond	mS/cm	DO Conc.	8.27 mg/L
Salinity	31.19 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Muddy Bottom Brush - 2m Hz 10050 Facing channel, wipers parked Garage very fouled inside

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: GBE 082820

Datasonde Maintenance

Date of Calibration: 8/24/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	13C100183	DO	14G101760
pH	16M103220	Conductivity	16M100102
Turbidity	16M101849	Chlorophyll	16M101053

Comments: Wiper 16M101302 fDOM 16M101489

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment				Post-Deployment			Sensor Diagnostics	
	Standards	Before Cal	Calibrated	Error				Pre-Deployment	
%sDO @ 100% sat		100.6	99.7		100.2			DO chrg (range 25-75)	
Baro. Pres. (DO Calib)		758.0 mm Hg	99.8		760.3 mm Hg	100		DO gain (0.8-1.7)	1.00
Baro. Pres. (Depth Calib)		758.7 mm Hg (760.0 for vented sonde)			760.0 mm Hg (760.0 for vented)			DO warm up test (hi lo)	
Depth	_____ offset	0 m	-0.018		0.003	_____ offset		Cell const (4.6-5.45)	0.47
SpCond	_____ mS/cm	50.26 mS/cm	50 mS/cm		49.46 mS/cm	0.003		pH 7 (0 +- 50 mV)	-13.61
pH 7	_____	7.03	7		7.00			pH 10 (+180 +- 50 mV)	-184.53
pH 10	_____	10.04	10		10.09			pH 4 (+180 +- 50 mV)	
pH 4	_____							Calculated pH slope	170.92
Turb	_____ NTU	-0.28 NTU	0 NTU		0.2 NTU			Post-Deployment	
Turb	_____ NTU	112.2 NTU	124 NTU		123.6 NTU			DO chrg (range 25-75)	
Rhodamine WT Temp	_____ °C				°C			DO warm up test (hi lo)	
Chl (0)	0.0 ug/L	ug/L	ug/L		ug/L			pH 7 (0 +- 50 mV)	-13.5
Chl (115)	_____ ug/L	ug/L	ug/L		ug/L	ug/L		pH 10 (+180 +- 50 mV)	189.6
								pH 4 (+180 +- 50 mV)	
Battery voltage		6.0 V (remove for post-cal)			5.2 V (remove for post-cal)			Calculated pH slope	176.1
Temp		22.5	22.56						

Programming

Interval _____ min Start date _____ mm/dd/yyyy Start time (military) _____ hh:mm

Duration _____ days Sonde file name _____ Battery life _____ days

Free memory _____ days Set clock (status) _____ Free bytes (status) _____ k

Parameters recorded: _____

Comments - Pre: Uncal'd turbidity DO cap 3 yrs old

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: GBE

Deployment Information

Date Deployed: 8/28/20 mm/dd/yyyy Time: 1310 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	21.0 °C	DO Percent	110.9 %
Sp Cond	_____ mS/cm	DO Conc	8.23 mg/L
Salinity	31.19 ppt	Other	_____

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 10/17/2020 mm/dd/yyyy Time: 12:15 EST hh:mm (24hr) White Towel: yes

Technician(s): T.W. Sonde ID #: _____

Field Data:

Water Temp	18.4 °C	DO Percent	89.0 %
Sp Cond	_____ mS/cm	DO Conc	7.72 mg/L
Salinity	31.15 ppt	Other	_____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	_____	External Screen	_____
Temp/Cond	_____	Dissolved Oxygen	_____
pH	_____	Turbidity	_____

Comments: Moderate Biofouling Med algal cover on sensor, loaded (heavy of stringy) Probes clean inside sonde guard

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments: Brush OK.

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: GBED91720

Datasonde Maintenance

Date of Calibration: 9/16/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	14A10067H	DO	17F102914
pH	14E100909	Conductivity	16M100100
Turbidity	17F10358	Chlorophyll	16M100740

Comments: Wiper 16M101304 fDOM 16M101490

Pre/Post Deployment Calibration: (turn on pH mV and DO Chg in H-port menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment		Sensor Diagnostics
							Pre-Deployment
*nDO = 100% sat		101.4	100.5		101.1		DO chrg (range 25-75)
Baro. Pres. (DO Calib)		764.0 mm/Hg			770.5	101.4	DO gain (0.8-1.2) 1.06
Baro. Pres. (Depth Calib)		765.8			770.5		DO warm up test (ok)
Depth		0.11 m	0.079		0.143		Cell const (4.6-5.4) 0.47
SpCond		49.64 mS/cm	50 mS/cm		50.06	0.143	pH 7 (-50 - +50 mV) -34.95
pH 7		7.09	7		7.03		pH 10 (-150 - +50 mV) -209.9
pH 10		10.17	10		10.04		pH 4 (-150 - +50 mV)
pH 4							Calculated pH slope 174.9
Turb		-0.09 NTU	0 NTU		0.3 NTU		**Post-Deployment**
Turb		128.58 NTU	124 NTU		123.8		DO chrg (range 25-75)
Rhodamine WT Temp		°C	°C		°C		DO warm up test (ok)
Chl		ug/L	ug/L		ug/L		pH 7 (-50 - +50 mV) -36.6
Chl		ug/L	ug/L		ug/L	ug/L	pH 10 (-150 - +50 mV) -212.7
							pH 4 (-150 - +50 mV)
Battery voltage		6.1			5.0		Calculated pH slope 176.1
Temp		23.4	23.39				

Programming

Interval	min	Start date	mm/dd/yyyy	Start time	hh:mm
Duration	days	Sonde file name		Battery life	days
Free memory	days	Set clock (status)		Free bytes (status)	%

Parameters recorded: _____

Comments - Pre: Uncal'd turbidity
DO cap 3 years old

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: GBE

Deployment Information

Date Deployed: 9/17/20 mm/dd/yyyy Time: 1420 hh:mm (24hr) White Tow el: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	18.4 °C	DO Percent	99.0 %
Sp Cond	mS/cm	DO Conc	7.70 mg/L
Salinity	31.15 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 10/17/2020 mm/dd/yyyy Time: 1400 EST hh:mm (24hr) White Tow el: yes

Technician(s): J.H Sonde ID #: _____

Field Data:

Water Temp	17.6 °C	DO Percent	96.7 %
Sp Cond	mS/cm	DO Conc	7.76 mg/L
Salinity	31.86 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments light biofouling - filamentous algae or hydroids
wiper slightly misaligned

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: GBE101220

Datasonde Maintenance

Date of Calibration: 10/9/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	16M102176	DO	17L100139
pH	19C100547	Conductivity	16M100103
Turbidity	16M101476	Chlorophyll	16M100742

Comments: Wiper 16M101299 New pH kit 20J100171 ZSM 17F101082

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Standards	Pre-Deployment: Before Cal	Pre-Deployment: Calibrated	Pre-Deployment: Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment	
%DO = 100% sat	100.1	100.5	____	101.5	____	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	763.8 mm/Hg	100.5	____	767.7 mm/Hg	101.0	DO gain (0.8-1.2)	1.07
Baro. Pres. (Depth Calib)	763.7 mm/Hg			767.7 mm/Hg		DO warm up test (hi lo)	0.47
Depth	0.02 m	0.05	____	0.104	____ m	Cell const (4.6-5.4)	
SpCond	50.00 mS/cm	50 mS/cm	____	50.000 mS/cm	0.105	pH 7 (-50 - +50 mV)	-4.5
pH 7	6.55	7	____	7.07		pH 10 (-150 - +50 mV)	-183.50
pH 10	9.66	10	____	9.99		pH 4 (-50 - +50 mV)	
pH 4						Calculated pH slope	179.02
Turb	0.03 NTU	0 NTU	____	020 NTU		**Post-Deployment**	
Turb	123.83 NTU	124 NTU	____	122.81 NTU		DO chrg (range 25-75)	
Rhodam/no WT Temp						DO warm up test	
Chl 0.0						pH 7 (-50 - +50 mV)	-8.3
Chl						pH 10 (-150 - +50 mV)	-182.1
						pH 4 (-50 - +50 mV)	
Battery Voltage	6.1			5.6		Calculated pH slope	178.8
Temp	24.4	24.25					

Programming

Interval: _____ min Start date: _____ mm/dd/yyyy Start time (hh:mm): _____

Duration: _____ days Sonde file name: _____ Battery life: _____

Free memory: _____ bytes Set clock (status): _____ Free bytes (status): _____

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: GBE

Deployment Information

Date Deployed: 10/12/20 mm/dd/yyyy Time: 910 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	13.60 °C	DO Percent	96.7 %
Sp Cond	____ mS/cm	DO Conc.	8.26 mg/L
Salinity	31.80 ppt	Other	____

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 11/9/2020 mm/dd/yyyy Time: 12:45 hh:mm (24hr) White Towel: yes

Technician(s): J.H Sonde ID #: _____

Field Data:

Water Temp	11.4 °C	DO Percent	117.1 %
Sp Cond	____ mS/cm	DO Conc	10.33 mg/L
Salinity	26.98 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde/Guard	____	External Screen	____
Temp/Cond	____	Dissolved Oxygen	____
pH	____	Turbidity	____

Comments Light Brush Hvy Sonde / Screens clean, Brush OK

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: GBE110920

Datasonde Maintenance

Date of Calibration: 11/9/20 (mm/dd/yyyy) Technician(s): LM JH

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	16M102179	DO	16M101433
pH	16M107429	Conductivity	16J100645
Turbidity	14H105819	Chlorophyll	16M100743

Comments: W/pc 18E101493 EDOM 16M100135

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment			Post-Deployment		Sensor Diagnostics
Standards	Before Cal	Calibrated	Error	12/8/2020	12/8/20	Pre-Deployment
%DO - 100% sat	101.2	101.3		100.5		DO chrg (range 25-75)
Baro. Pres (DO Calib)	769.8	101.3		754.4	99.3	DO gain (0.8-1.7) 1.01
Baro. Pres (Depth Calib)	769.8			754.4		DO warm up test (<30)
Depth	0.24	0.133		-0.081		Cell const (4.5-5.45) 0.47
SpCond	50.07	50		49.77	-0.077	pH 7 (0 +- 50 mV) -12.82
pH 7	7.15	7.0		7.01		pH 10 (-140 +- 50 mV) -186.61
pH 10	10.07	10.0		9.96		pH 4 (+185 +- 50 mV)
pH 4						Calculated pH slope 173.69
Turb	0	0.02		0.01		Post-Deployment
Turb	124	122.97		128.15		DO chrg (range 25-75)
Rhodamine WT Temp						DO warm up test (<30)
Cal						pH 7 (0 +- 50 mV) -13.7
Cal						pH 10 (-140 +- 50 mV) -184.5
						pH 4 (+185 +- 50 mV)
Battery voltage	5.3			4.9		Calculated pH slope 170.8
Temp	23.451	23.443				

Programming

Interval: Start date: Start time (hh:mm):

Duration: W/per 1.18 Sonde file name: Battery life:

Data memory: Set clock to time: First pH cal (mV):

Parameters recorded:

Comments - Pre: SpC slow to stabilize

Comments - Post: DO high

SpC standard may have been old

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: File Name: GBE

Deployment Information

Date Deployed: 11/9/20 (mm/dd/yyyy) Time: 12:50 (hh:mm (24hr)) White Towel: yes

Technician(s): JH Sonde ID #:

Field Data:

Water Temp	11.4 °C	DO Percent	112.1 %
Sp Cond	mS/cm	DO Conc	10.23 mg/L
Salinity	26.98 ppt	Other	

Comments: Last deployments

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: Maintenance:

Comments

Retrieval Information

Date Retrieved: 12/7/2020 (mm/dd/yyyy) Time: 12:15 (hh:mm (24hr)) White Towel: yes

Technician(s): S.H. Sonde ID #:

Field Data:

Water Temp	1.5 °C	DO Percent	96.8 %
Sp Cond	mS/cm	DO Conc	12.53 mg/L
Salinity	11.30 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A.H. B.L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Wiper is loose. Don't think it was turning. Sonde clean.

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: HH052920

Datasonde Maintenance

Date of Calibration: 5/26/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	14A100674	DO	17F102914
pH	14E100909	Conductivity	16M100100
Turbidity	17F103581	Chlorophyll	16M100740

Comments: Wiper 16M101304 cDOM 16M101490

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics
Temp	20.85	20.80					**Pre-Deployment**
%DO = 100% SAT		102.6 %	100.8		100.1 %	%	DO chrg (range 25-75)
Baro. Pres. (DO Calib)		766.1 mm Hg			764.1 mm Hg	100.5	DO gain (0.8-1.7) 1.06
Baro. Pres. (Depth Calib)		766.1 mm Hg	100.3 (760.0 for vented sonde)		764.1 mm Hg (760.0 for vented)		DO warm up test (hi/lo)
Depth	____ offset	0.16	0.08		0.058	____ offset	Cell const (4.6-5.45) 0.47
SpCond	____ mS/cm	49.85 mS/cm	50 mS/cm		mS/cm	0.05	pH 7 (0 +/- 50 mV) -31.47
pH 7		6.99	7		49.93		pH 10 (-180 +/- 50 mV) -200.62
pH 10		10.11	10		7.14		pH 4 (+180 +/- 50 mV)
pH 4					10.02		Calculated pH slope 179.15
Turb	____ NTU	0.32 NTU	21 NTU		-0.5 NTU		**Post-Deployment**
Turb	____ NTU	123.14 NTU	124 NTU		124.9		DO chrg (range 25-75)
Rhodamine WT Temp		°C					DO warm up test (hi/lo)
Chl [1]	0.0 ug/L	____ ug/L	____ ug/L		____ ug/L		pH 7 (0 +/- 50 mV) -38.7
Chl [2]	____ ug/L	____ ug/L	____ ug/L		____ ug/L	____ ug/L	pH 10 (-180 +/- 50 mV) 203.3
							pH 4 (+180 +/- 50 mV)
Battery voltage		5.4 V (sensor ext power <8V, 6038)			4.9 V (sensor ext power)		Calculated pH slope 173.6

Programming

Interval	____ min	Start date	____ mm/dd/yyyy	Start time (opt sonde)	____ hh:mm:ss
Duration	____ days	Sonde file name	____	Battery life	____ days
Free memory	____ days	Set clock (status)	____	Free bytes (status)	____ K

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: HH File Name: _____

Deployment Information

Date Deployed: 5/27/20 mm/dd/yyyy Time: 1030 hh:mm (24hr) EST White Towel: yes

Technician(s): TG Sonde ID #: _____

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc.	mg/L
Salinity	ppt	Other	

Comments: deploy for season, val collected, mark HH on new GPS 42.92356 70.83737

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 6/3/20 Duration: 8 min Maintenance: _____

Comments: Moved sonde ~ 8 meters from original location, depth ~ 1m deeper placed on other side of channel which may be more stable.

Retrieval Information

Date Retrieved: 6/10/20 mm/dd/yyyy Time: 0745 hh:mm (24hr) White Towel: yes

Technician(s): TG Sonde ID #: _____

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc.	mg/L
Salinity	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	N/A	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Overlap @ 0745, 1st new measurement @ 0815, not in place @ 0800!
Light filamentous algae on sensor bodies. Faces clear.

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments: Nepsor on

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: HH061820

Datasonde Maintenance

Date of Calibration: 6/16/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	16M102479	DO	16M101433
pH	16M102424	Conductivity	16cT100645
Turbidity	14H102979	Chlorophyll	16M101053

Comments: W/per 16M101300 Room 16L103564

New DO cap 20E100414 New pH Hp 20E100618

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			**Pre-Deployment**	
Temp 19.4		19.31					
%DO = 100% sat	107.6	101.7		100.8	99.9 %	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	772.2 mm Hg	101.6		759 mm Hg		DO gain (0.8-1.7)	1.02
Baro. Pres. (Depth Calib)	Abs. 5 mm Hg	(760.0 for vented units)		761.4 mm Hg	(760.0 for vented)	DO warm up test (hi/lo)	
Depth offset	0.06 m	0.088	0.	0.025	offset	Cell const (4.6-5.45)	0.47
SpCond mS/cm	50.03 mS/cm	50 mS/cm		50.019 mS/cm	0.019	pH 7 (0 +/- 50 mV)	-11.4
pH 7	6.82	7		6.91		pH 10 (-180 +/- 50 mV)	-183.45
pH 10	9.74	10		9.88		pH 4 (+180 +/- 50 mV)	
pH 4						Calculated pH slope	172.02
Turb NTU	0.01 NTU	0 NTU		0.7 NTU		**Post-Deployment**	
Turb NTU	125.78 NTU	124 NTU		124.8 NTU		DO chrg (range 25-75)	
Rhodamine WT Temp		°C		°C		DO warm up test (hi/lo)	
Chl a 0.0	ug/L	ug/L	ug/L	ug/L		pH 7 (0 +/- 50 mV)	-6.8
Chl (418)	ug/L	ug/L	ug/L	ug/L	ug/L	pH 10 (-180 +/- 50 mV)	-178.8
						pH 4 (+180 +/- 50 mV)	
Battery voltage	6.2 V (removed power 4.93, 6858)			5.4 V (removed power)		Calculated pH slope	172.6

1.21 @1.22

Programming

Interval	_____ min	Start date	_____ mm/dd/yyyy	Start time (military)	_____ hh:mm:ss
Duration	_____ days	Sonde file name	_____	Battery life	_____ days
Free memory	_____ days	Set clock (status)	_____	Free bytes (status)	_____ k

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: pH kind of low

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: HH File Name: HH061820

Deployment Information

Date Deployed: 6/18/20 mm/dd/yyyy Time: 815 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc	mg/L
Salinity	ppt	Other	

Comments: Overlap 745
Sale starts 815 (missed 800 pt)

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 6-19-20 Duration: ~~min~~ 16 15 Maintenance: _____

Comments: Sonde moved to a hopefully deeper location.

Retrieval Information

Date Retrieved: 7/29/20 mm/dd/yyyy Time: 1130 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc	mg/L
Salinity	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	A/M	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Wiper good, Snorkeled, anchor @ angle
& 2x overlap
Wiper very sprayed. Wiper garage broken

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments: _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: HH072920

Datasonde Maintenance

Date of Calibration: 7/22/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	16M102178	DO	17L100138
pH	14G101499	Conductivity	16J100644
Turbidity	13M102262	Chlorophyll	16M100741
Comments	wipers 13M101014	CDOM	17F101081

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Wipers 1.17

	Pre-Deployment				Post-Deployment		Sensor Diagnostics
	Standards	Before Cal	Calibrated	Error			Pre-Deployment
%aDO = 100% sat		100.5	100.4		99.7	%	DO chrg (range 25-75)
Baro. Pres. (DO Calib)		762.7 mm Hg	100.4		761.7 mm Hg	100.2	DO gain (0.8-1.7) 1.06
Baro. Pres. (Depth Calib)		762.7 mm Hg	(760 if no vented sonde)		761.7 mm Hg	(760 if no vented)	DO warm up test (hi lo)
Depth	_____ other	0.06	0.037		0.035	other	Cell const (4.6-5.45) 0.47
SpCond	_____ mS/cm	50.29 mS/cm	50 mS/cm		49.99 mS/cm	0.023	pH 7 (0 +/- 50 mV) -11.36
pH 7	_____	7.07	7		7.07		pH 10 (-180 +/- 50 mV) -184.43
pH 10	_____	10.03	10		10.03		pH 4 (+180 +/- 50 mV)
pH 4	_____						Calculated pH slope 173.17
Turb	_____ NTU	2.06 FTU	0 NTU		0.15 FTU		Post-Deployment
Turb	_____ NTU	125.10 FTU	124 FTU		124.3 FTU		DO chrg (range 25-75) _____
Rhodamine WT Temp	_____ °C	_____	_____		_____ °C		DO warm up test (hi lo)
Chl (cal)	0.0 ug/L	_____ ug/L	_____ ug/L		_____ ug/L		pH 7 (0 +/- 50 mV) -15.5
Chl (cal)	_____ ug/L	_____ ug/L	_____ ug/L		_____ ug/L	_____ ug/L	pH 10 (-180 +/- 50 mV) -185.4
Battery voltage		6.1 V (minimum post-cal: 6.0)			5.1 V (minimum post-cal: 6.0)		pH 4 (+180 +/- 50 mV)
							Calculated pH slope 169.9

Temp 23.95 23.87

Programming

Interval	_____ min	Start date	_____ mm/dd/yyyy	Start time (military)	_____ hh:mm:ss
Duration	_____ days	Sonde file name	_____	Battery life	_____ days
Free memory	_____ days	Set clock (status)	_____	Free bytes (status)	_____ K

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: HH

Deployment Information

Date Deployed: 7/29/20 mm/dd/yyyy Time: 840 hh:mm (24hr) White Towel: yes

Technician(s): TG Sonde ID #: _____

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc.	mg/L
Salinity	ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 8/14/20 mm/dd/yyyy Time: 1030 hh:mm (24hr) White Towel: yes

Technician(s): TG Sonde ID #: _____

Field Data:

Water Temp	19.10 °C	DO Percent	105 %
Sp Cond	48.19 mS/cm	DO Conc.	7.91 mg/L
Salinity	31.47 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	N/A	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments 1030 overlap, pre-PM Clean Brush wiper sprayed with H2O. Parked slightly outside guard but not over sensors,

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments Wipers recorded NAWQs randomly but no misparking

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: HH081920

Datasonde Maintenance

Date of Calibration: 8/18/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	16M102176	DO	17L100139
pH	16M103219	Conductivity	16M100103
Turbidity	16M101479	Chlorophyll	16M100742
Comments	W.P. 16M101299	CDOM	17E101082

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			**Pre-Deployment**	
*sDO = 100% sat	99 %	99.4 %	____	99.6 %	____ %	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	755.1 mmHg	99.4		762.5 mmHg	100.3 Check for cal drift	DO gain (9 8-11)	1.07
Baro. Pres. (Depth Calib)	755.1 mmHg	99.4		762.5 mmHg		DO warm up test (lo hi)	
Depth ____ m/ft	-0.17	-0.067	____	0.039	____ m/ft	Cell const (4.6-5.45)	6.47
SpCond ____ mS/cm	50.20 mS/cm	50 mS/cm	____	6.99 mS/cm	0.034	pH 7 (0 +- 50 mV)	-8.05
pH 7 ____	7.07	7	____	10.05		pH 10 (-180 +- 50 mV)	-177.01
pH 10 ____	9.99	10	____	49.31		pH 4 (+180 +- 50 mV)	
pH 4 ____			____			Calculated pH slope	168.96
Turb ____ NTU	0.06 NTU	0 NTU	____	0.05 NTU		**Post-Deployment**	
Turb ____ NTU	124.1 NTU	124 NTU	____	121.8		DO chrg (range 25-75)	____
Rhodamine WT Temp	____ C			____ C		DO warm up test (lo hi)	
Chl ____ 0.0 ug/L	____ ug/L	____ ug L	____	____ ug L		pH 7 (6 +- 50 mV)	-7.4
Chl (raw) ____ ug/L	____ ug/L	____ ug L	____	____ ug L	____ ug/L	pH 10 (-180 +- 50 mV)	-179.6
						pH 4 (+180 +- 50 mV)	
Battery voltage	6.1 (volts or percent with slash)			5.0 (volts or percent)		Calculated pH slope	172.3
Temp	22.45	22.49					

Programming

Interval	____ min	Start date	____ mm/dd/yyyy	Start time (military)	____ hhmm
Duration	____ days	Sonde file name	____	Battery life	____ days
Free memory	____ days	Set clock (status)	____	Free bytes (status)	____ %

Parameters recorded: _____

Comments - Pre: Turbidity kind of unstable

Comments - Post: Brush fell off. Faces tightly fouled. SPC low

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: HH

Deployment Information

Date Deployed: 8/19/20 mm/dd/yyyy Time: 1035 hh:mm (24hr) White Towel: yes

Technician(s): TG Sonde ID #: _____

Field Data:

Water Temp	19.2 °C	DO Percent	103 %
Sp Cond	48.19 mS/cm	DO Conc.	7.91 mg/L
Salinity	31.48 ppt	Other	

Comments: 1030 overlap

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 9/11/20 mm/dd/yyyy Time: 735 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	20.1 °C	DO Percent	94.8 %
Sp Cond	45.61 mS/cm	DO Conc.	5.7 mg/L
Salinity	29.15 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde/Guard		External Screen	
Temp/Cond	A/L	Dissolved Oxygen	
pH		Turbidity	

Comments: NO overlap (Fred in a hurry), brush fell off → electrolysis from boats ??

File Retrieval

Sonde Filename: _____ Print Graph: ____ Probe Malfunction: ____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: HH091120

Datasonde Maintenance

Date of Calibration: 9-10-20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	14A100675	DO	19A100090
pH	17E101760	Conductivity	16M100099
Turbidity	13M102300	Chlorophyll	16M101053

Comments: Wiper 19A100643 ODOM 16L103567

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment 10/7/20		Sensor Diagnostics Pre-Deployment	
%aDO @ 100% sat	101.1 %	100.7 %	___	96.2 %	___ %	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	765.0 mmHg	100.7		749.2 mmHg	98.6	DO gain (0.8-1.7)	1.04
Baro. Pres. (Depth Calib)	765.0 mmHg			744.8 mmHg		DO warm up test (hi lo)	
Depth ___ offset	0.09 m	0.071	___	-0.147 m	___ offset	Cell const (4.6-5.45)	0.47
SpCond ___ mS/cm	49.55 mS/cm	50 mS/cm	___	50.16 mS/cm	-0.147	pH 7 (0 +- 50 mV)	-32.04
pH 7 ___	6.96	7	___	6.98		pH 10 (-180 +- 50 mV)	-205.63
pH 10 ___	10.05	10	___	10.07		pH 4 (+180 +- 50 mV)	
pH 4 ___						Calculated pH slope	73.61
Turb ___ NTU	0.01 FTU	0 NTU	___	0.1 NTU		**Post-Deployment**	
Turb ___ NTU	123.38 FNU	124 FNU	___	124.1 FNU		DO chrg (range 25-75)	___
Rhodamine WT Temp	___ °C			___ °C		DO warm up test (hi lo)	
Chl (ex) 0.0 ug/L	___ ug/L	___ ug/L	___	___ ug/L		pH 7 (0 +- 50 mV)	-31.1
Chl (em) ___ ug/L	___ ug/L	___ ug/L	___	___ ug/L	___ ug/L	pH 10 (-180 +- 50 mV)	-202.16
						pH 4 (+180 +- 50 mV)	
Battery Voltage	6.1 V (sufficient power for deployment)			5.1 V (sufficient power)		Calculated pH slope	73.3

Temp 19.1 19.16

Programming

Interval	___ min	Start date	___ mm/dd/yyyy	Start time (military)	___ hh:mm:ss
Duration	___ days	Sonde file name	___	Battery life	___ days
Free memory	___ days	Set clock (status)	___	Free bytes (status)	___ %

Parameters recorded: _____

Comments - Pre: DO values may not have been fully saturated

Comments - Post: Sonde sat in bucket overnight before post-cal caused low DO,

---

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: HH

Deployment Information

Date Deployed: 9/11/20 mm/dd/yyyy Time: 740 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	20.1 °C	DO Percent	74.8 %
Sp Cond	45.16 mS/cm	DO Conc	5.7 mg/L
Salinity	29.15 ppt	Other	

Comments: No overlap

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 10/6/20 mm/dd/yyyy Time: 942 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	14.1 °C	DO Percent	85.1 %
Sp Cond	47.7 mS/cm	DO Conc	7.04 mg/L
Salinity	31.06 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: 7/5 overlap, looks good

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: HH100620

Datasonde Maintenance

Date of Calibration: 10/2/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	16J100910	DO	16M101433
pH	16M102424	Conductivity	16J100645
Turbidity	14H102910	Chlorophyll	16M100743
		fDOM	16M100185

Comments W/pH 18E101493

Pre/Post Deployment Calibration: (turn on pH mV and DO Chg in Report menu)

Pre-Deployment				Post-Deployment		Sensor Diagnostics
Standards	Before Cal	Calibrated	Error	10/27/20		Pre-Deployment
%aDO (100% sat)	100.5	100		100.9		DO chrg (range 25-75)
Baro. Pres. (DO Calib)	760			765.8	100.8	DO gain (0.8-1.2) 1.00
Baro. Pres. (Depth Calib)	760	0		765.8		DO warm up test (h:m:s)
Depth	-0.08	0		0.07		Cell const (4.6-5.4) 0.47
SpCond	49.77	50		50.02	0.079	pH 7 (0 +- 50 mV) -4.14
pH 7	6.99	7		6.98		pH 10 (-165 +- 50 mV) -181.23
pH 10	10.08	10		9.98		pH 4 (165 +- 50 mV)
						Calculated pH slope 177.09
Turb	-0.02	0		0.07		Post-Deployment
Turb	123.97	124		125.45		DO chrg (range 25-75)
Rhodamine WT Temp						DO warm up test (h:m:s)
Chl 600						pH 7 (0 +- 50 mV) -7.8
Chl						pH 10 (-165 +- 50 mV) -181.3
						pH 4 (165 +- 50 mV)
Battery Voltage	6.2			5.4		Calculated pH slope 173.4
Temp	23.7	23.73				

Programming

Interval		Start date		Start time	
Duration		Sonde file name		Battery life	
Free memory		Set clock (status)		Free bytes (status)	

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: HH

Deployment Information

Date Deployed: 10/6/20 mm/dd/yyyy Time: 800 hh:mm (24hr) White Towel: YES

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	14.1 °C	DO Percent	93.1 %
Sp Cond	47.7 mS/cm	DO Conc.	7.04 mg/L
Salinity	31.06 ppt	Other	

Comments 745 overlap

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 10/27/20 mm/dd/yyyy Time: 845 hh:mm (24hr) White Towel: YES

Technician(s): TS Sonde ID #: _____

Field Data:

Water Temp	11.7 °C	DO Percent	95.9 %
Sp Cond	48.6 mS/cm	DO Conc.	9.52 mg/L
Salinity	31.8 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Sonde clean, Brush OK

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: HH102720

Datasonde Maintenance

Date of Calibration: 10/26/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	16M102178	DO	17L100138
pH	14G101499	Conductivity	16J100644
Turbidity	13M102202	Chlorophyll	16M100741

Comments: Wiper 16M101300 CDOM 17E101081

Pre/Post Deployment Calibration: turn on pH mV and DO Chg in Report menu

	Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment 12/10/2020	Sensor Diagnostics
%aDO = 100% sat		101.6	101.3	___	99.5	Pre-Deployment
Baro. Pres. (DO Calib)		769.9	101.3		755.9	DO chrg range 25-75:
Baro. Pres. (Depth Calib)		769.9			755.9	DO gain (0.5-1.7): 1.006
Depth		0.27	0.135	___	-0.060	DO warm up test (0.8-1.2):
Sp Cond		50.09	50	___	49.73	Cell const (4.6-5.4): 0.47
pH 7		7.02	7	___	7.08	pH 7 (0 ± 50 mV): -14.36
pH 10		10.02	10	___	9.95	pH 10 (-165 ± 50 mV): -197.59
pH 4						pH 4 (+165 ± 50 mV):
Turb	0	0.08	0	___	0.02	Calculated pH slope: 172.24
Turb	124	123.26	124	___	123.80	Post-Deployment
Rhodamine WT Temp						DO chrg range 25-75: ____
Chl						DO warm up test:
Cond		5.47				pH 7 (0 ± 50 mV): -19.2
						pH 10 (-165 ± 50 mV): -197.3
						pH 4 (+165 ± 50 mV):
Battery Voltage		5.2			0	Calculated pH slope: 172.1

Temp 21.1 21.11

Programming

Interval: Wiper 720 Start date: _____ Start time: _____

Duration: _____ Sonde file name: _____ Battery life: _____

Warm-up: _____ Set clock (Y/N): _____ Free fly (Y/N): _____

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: Batteries D/2 dead. Was planning to swap 1 more time before the end of the season & then that didn't happen. Wiper on but misparked SpC standard may have been old

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: HH

Deployment Information

Date Deployed: 10/29/20 mm dd yyyy Time: 850 hh:mm (24hr) White Towel: yes

Technician(s): TG Sonde ID #: _____

Field Data:

Water Temp	11.7 °C	DO Percent	95.9 %
Sp Cond	48.6 mS/cm	DO Conc	8.50 mg/L
Salinity	31.6 ppt	Other	

Comments: _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments: _____

Retrieval Information

Date Retrieved: 12/2/20 mm/dd/yyyy Time: 1345 hh:mm (24hr) White Towel: yes

Technician(s): TG Sonde ID #: _____

Field Data:

Water Temp	3.7 °C	DO Percent	92.4 %
Sp Cond	35.9 mS/cm	DO Conc	10.52 mg/L
Salinity	22.05 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A.H. B.L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: 42.923697, -70.837124 name 0011 (on handheld GPS) may have pulled it up before during 1345 pic

Batteries died 12/2

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments: _____

* shell was stuck on wiper. Brush blocking fDOM sensor...

NERRS SWMP Water Quality Calibration Log

ULB042320

Reserve: | Station Name: | CDMO Raw File Name:

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number	Model Number
Datasonde			
Vented		Model Number	
Nickname			

14A100674

	Serial Number	Model Number
pH	16E100909	
RP DO		
ODO	17F103814	
Turbidity	17F103518	
Conductivity	16M100100	
Chlorophyll	16M100740	
EXO Wiper	16M101304	

Datasonde Maintenance

Date of Calibration: mm-dd-yyyy | Technician(s): HM

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced				Wiper parks 180° from optics			
Batteries Replaced				DO/ODO membrane replaced			
Format Flash Disk				Membrane integrity test			

Comments: FDOM 16M101490

Pre/Post Deployment Calibration

Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment	Before Cal	Error
Temp °C	24.30			Check Date	5/20/20	
RP % DO @ 100% sat						
BP @ cal (Rapid Pulse) mm Hg					101.9	
Optical %DO @ 100% sat	97.20	98.60		103.4		
BP @ Cal (Optical)	760 mm Hg			774 mm Hg		
Baro Pres (Depth Calib)	760.6 mm Hg	0.008 psi		774 mm Hg (Std 0 for vented)		
Depth offset	0.07 m	0.01 m		0.185 offset	0.192	
Station Offset						
Level offset				offset		
SpCond mS cm	49.97 mS cm	50 mS cm		50.02 mS cm		
ph 7	7.19	7		6.97		
ph 10	10.05	10		10.04		
ph 4						
Turb NTU FSU	0.09 FSU	0 NTU FSU		0.2 NTU FSU		
Turb NTU FSU	124.6 FSU	124 NTU FSU		124.2 NTU FSU		
Rhodamine WT Temp °C				°C		
Chl (0) 0.0 ug/L	ug/L	ug/L		ug/L		
Chl (118) ug/L	ug/L	ug/L		ug/L		
Battery voltage V	6.2 V (must exit power-650 ddl8)			6.2 V (must exit power)		

Sensor Diagnostics Pre-Deployment	
RP DO chrg (range 25-75)	
RP DO gain (0.7-1.4)	
Optical DO gain (600 0.7-1.4; EXO 0.67-1.25)	1.08
RP DO warm up test (Pa/hr)	
Cell const (6600 .4-6.5 cf; EXO 3.95-5.95; WTW ENO .0 419-0.519)	0.47
pH 7 (0 +- 50 mV)	-21.98
pH 10 (-180 +- 50 mV)	-190.77
pH 4 (+180 +- 50 mV)	
Calculated pH slope (<155 is suspect) (A 7 will result in negative slope)	171.79

Post-Deployment	
RP DO chrg (range 25-75)	
RP DO warm up test (Pa/hr)	
pH 7 (0 +- 50 mV)	-16.4
pH 10 (-180 +- 50 mV)	-196.7
pH 4 (+180 +- 50 mV)	
Calculated pH Slope (<155 is suspect)	180.2

Programming

Interval mm		Start date mm/dd/yyyy		Start time (STD) hh:mm:ss	
Duration days		sonde file name		Battery life days	
Free memory Mbytes		Set clock (status) Y or N		Free memory (status) bytes/days/%	
Parameters recorded					
Temp °C		Sp Cond		Salinity	
DO % sat		DO Conc		Depth/Level	
pH		Turbidity		Chlorophyll	
		pH mV		Battery Voltage	

Comments/Pre:

Comments/Post: DO High (2.5%) pH 7 kind of low

NERRS SWMP Water Quality Field Log

ULB042320

Reserve: Great Bay | Station Name: | File Name:

Deployment Information

Date Deployed: 4/23/20 mm/dd/yyyy | Time: hh:mm (24hr) | White Towel: YES

Technician(s): | Sonde ID #:

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc	mg/L
Salinity	ppt	Other	

Comments: 1st deployment

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: | Duration: | Maintenance:

Comments

Retrieval Information

Date Retrieved: 5/20/2020 mm/dd/yyyy | Time: 11:20 hh:mm (24hr) | White Towel: YES

Technician(s): M + J.H. | Sonde ID #:

Field Data:

Water Temp	13.7 °C	DO Percent	102.0 %
Sp Cond	mS/cm	DO Conc	9.69 mg/L
Salinity	27.92 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	N	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Small amount of mud on cap, water in correct position

File Retrieval

Sonde Filename: | Print Graph: | Probe Malfunction:

Comments

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: ULB052020

Datasonde Maintenance

Date of Calibration: 5/19/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	17F103174	DO	14G101670 (cap) 7
pH	16M103220	Conductivity	16M100102
Turbidity	16M101849	Chlorophyll	16M101053
Comments	1000 ref 16L103566	W, 124	14A10005 8 V
	New pH 4/7 20C100645		

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment	Standards	Before Cal	Calibrated	Error	Post-Deployment 6/22/20	Sensor Diagnostics
Temp	23.7	23.85				**Pre-Deployment**
%DO @ 100% sat		100.3	100.9		99.6 %	DO chrg (range 25-75)
Baro. Pres. (DO Calib)		766.8 mm Hg	100.9 (760.0 for vented models)		760.0 mm Hg 100.0 (760.0 for vented)	DO gain (0.8-1.7) 1.01
Baro. Pres. (Depth Calib)		766.8 mm Hg			760.0 mm Hg	DO warm up test (hi/lo)
Depth	offset	0.29	0.09		-0.004 offset	Cell const (4.6-5.45) 0.47
SpCond	mS/cm	49.78 mS/cm	50 mS/cm		50.20 0	pH 7 (0 +/- 50 mV) -4.86
pH 7		7.08	7		7.12	pH 10 (-180 +/- 50 mV) -180.2
pH 10		10.03	10		10.07	pH 4 (+180 +/- 50 mV)
pH 4						Calculated pH slope 177.37
Turb	NTU	0.0 NTU	0 NTU		0.0 NTU	**Post-Deployment**
Turb	NTU	125.76 NTU	124 NTU		122.3 NTU	DO chrg (range 25-75)
Rhodamine WT Temp		°C			°C	DO warm up test (hi/lo)
Chl (10)	0.0 ug/L	ug/L	ug/L		ug/L	pH 7 (0 +/- 50 mV) -11.7
Chl (110)	ug/L	ug/L	ug/L		ug/L ug/L	pH 10 (-180 +/- 50 mV) 186.0
						pH 4 (+180 +/- 50 mV)
Battery voltage		6.1 V (Observe ext. power 6.50-6.60)			5.3 V (remove ext. power)	Calculated pH slope 174.3

wipers 1, 2

Programming

Interval	_____ min	Start date	_____ mm/dd/yyy	Start time (std time)	_____ hh:mm:ss
Duration	_____ days	Sonde file name	_____	Battery life	_____ days
Free memory	_____ days	Set clock (status)	_____	Free bytes (status)	_____ K

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: _____

Uncal Chl next time

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: ULB

Deployment Information

Date Deployed: 5/20/2020 mm/dd/yyyy Time: 1130 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	13.7 °C	DO Percent	107.10 %
Sp Cond	_____ mS/cm	DO Conc.	9.24 mg/L
Salinity	22.97 ppt	Other	_____

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 5/27/20 Duration: _____ Maintenance: _____

Comments Moved sonde deeper ~ 1020

Retrieval Information

Date Retrieved: 6/22/20 mm/dd/yyyy Time: 1520 hh:mm (24hr) White Towel: yes

Technician(s): LM Sonde ID #: _____

Field Data:

Water Temp	19.9 °C	DO Percent	107.4 %
Sp Cond	45.3 mS/cm	DO Conc.	8.00 mg/L
Salinity	29.74 ppt	Other	_____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	_____	External Screen	_____
Temp/Cond	_____	Dissolved Oxygen	_____
pH	_____	Turbidity	_____

Comments Overlap 15S
Sensors/tubes clean but huge pieces of Saccharina w/ epiphytes around sonde, pipes & stuff

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments In operenga. May have restricted flow.

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: ULB062220

Datasonde Maintenance

Date of Calibration: 6/20/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	14A100675	DO	19A100090
pH	17E101760	Conductivity	16M100099
Turbidity	13M102200	Chlorophyll	16M101054

Comments: Rdom 16M101989 Wiper 13C101175

Pre/Post Deployment Calibration: (turn on pH mV and DO Chg in Report menu)

	Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics
Temp / %dDOC 100% sat	23.91	100.2	100.2	24.8	99.1	%	**Pre-Deployment**
Baro. Pres. (DO Calib)	761.5 mmHg	100.2			755.8 mmHg	99.4	DO chrg (range 25-75)
Baro. Pres. (Depth Calib)	760.9 mmHg				755.8 mmHg (760.9 for vented sonde)		DO gain (0.8-1.7) 1.05
Depth	offset	-0.07	0.012		-0.056	offset	DO warm up test (hi/lo)
SpCond	mS/cm	49.93	50		51.29	-0.058	Cell const (4.6-5.45) 0.47
pH 7		7.07	7		7.00		pH 7 (0 +/- 50 mV) -26.73
pH 10		10.08	10		9.90		pH 10 (-180 +/- 50 mV) 202.63
pH 4							pH 4 (+180 +/- 50 mV)
Turb	NTU	-0.02	0		0.2	NTU	Calculated pH slope 175.94
Turb	NTU	124.18	124		124.3		**Post-Deployment**
Rhodamine WT Temp						°C	DO chrg (range 25-75)
Chl (in) 0.0	ug/L		ug/L			ug/L	DO warm up test (hi/lo)
Chl (cor)	ug/L		ug/L			ug/L	pH 7 (0 +/- 50 mV) -26.7
			ug/L			ug/L	pH 10 (-180 +/- 50 mV) -195.1
Battery voltage		5.12			5.10	V	pH 4 (+180 +/- 50 mV)
							Calculated pH slope 168.4

Programming

Wiper 1.15 @ 1:14 (Hope 1.13)

Interval	min	Start date	mm/dd/yyyy	Start time	hh:mm:ss
Duration	days	Sonde file name		Battery life	days
Free memory	days	Set clock (status)		Free bytes (status)	K

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: SpC (check standard was off)
High
Wiper didn't work well during deployment
Messed up pH + DO data

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: ULB

Deployment Information

Date Deployed: 6/22/20 mm/dd/yyyy Time: 15:35 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	19.9 °C	DO Percent	107.4 %
Sp Cond	45.8 mS/cm	DO Conc.	8.52 mg/L
Salinity	29.74 ppt	Other	

Comments: Overlap 15

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 6/24/20 Duration: 1025 Maintenance: _____

Comments: Pulled up sonde & brought back to lab to cal + install new wiper. Put back @ 1115

Retrieval Information

Date Retrieved: 7/13/20 mm/dd/yyyy Time: 10:23 hh:mm (24hr) White Towel: yes

Technician(s): LM Sonde ID #: _____

Field Data:

Water Temp	23.3 °C	DO Percent	97.4 %
Sp Cond	44.67 mS/cm	DO Conc.	7.03 mg/L
Salinity	28.90 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Mud on top of sonde
Wiper brush may have been over DO probe partially
Large piece saccharomyces.

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments: Sensors clean

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: ULB071320

Datasonde Maintenance

Date of Calibration: 7/7/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	16M102174	DO	16M101434
pH	17J100006	Conductivity	16J100640
Turbidity	16M101482	Chlorophyll	17F102112

Comments: W+pH 16J100191 fDOM 16M100183

Pre/Post Deployment Calibration: (turn on pH mV and DO Chng in Report menu)

	Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics
Temp °C / DO % (100% Sat)	25.6	100.6	100.6 / 25.62		100.1 / 24.7		**Pre-Deployment**
Baro. Pres. (DO Calib)		764.9 mHg	100.6		763.3 mHg	100.4	DO chrg (range 25-75)
Baro. Pres. (Depth Calib)		764.9 mHg			763.3 mHg		DO gain (0 8-1 7) 1.11
Depth	_____ mHuA	0.05 m	0.067		0.049 m		DO warm up test (hr lo)
SpCond	_____ mS cm	50.78 mS cm	50 mS cm		50.10 mS cm	0.045	Cell const (4 6-5.45) 0.47
pH 7	_____	7.02	7		7.08		pH 7 (0 +- 50 mV) -8.89
pH 10	_____	9.93	10		10.01		pH 10 (-180 +- 50 mV) -181.12
pH 4	_____						pH 4 (+180 +- 50 mV)
Turb	_____ NTU	0.00 NTU	0 NTU		0.02 NTU		Calculated pH slope 72.22
Turb	_____ NTU	124.69 NTU	124 NTU		125.3		**Post-Deployment**
Rhodamine WT Temp	_____ °C				_____ °C		DO chrg (range 25-75)
Chl 0.0	_____ ug/L	_____ ug/L	_____ ug/L		_____ ug/L		DO warm up test (hr lo)
Chl	_____ ug/L	_____ ug/L	_____ ug/L		_____ ug/L	_____ ug/L	pH 7 (0 +- 50 mV) -13.4
							pH 10 (-180 +- 50 mV) -182.7
							pH 4 (+180 +- 50 mV)
Battery Voltage		5.4 V (between 12 and 15 V)			5.0 (between 12 and 15 V)		Calculated pH slope 169.3

Programming

Interval	_____ min	Start date	_____ mm/dd/yyyy	Start time (24 hrs)	_____ hh:mm:ss
Duration	_____ days	Sonde file name	_____	Battery life	_____ days
Free memory	_____ days	Set clock (status)	_____	Free bytes (status)	_____ K

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: ULB

Deployment Information

Date Deployed: 7/13/20 mm/dd/yyyy Time: 1035 hh:mm (24hr) White Towel: yes

Technician(s): LM Sonde ID #: _____

Field Data:

Water Temp	23.3 °c	DO Percent	97.4 %
Sp Cond	44.67 mS/cm	DO Conc.	7.09 mg/L
Salinity	28.40 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 8/6/2020 mm/dd/yyyy Time: ~~1334~~ 13.34 hh:mm (24hr) White Towel: yes

Technician(s): J.H. Sonde ID #: _____

Field Data:

Water Temp	21.1 °c	DO Percent	91.7 %
Sp Cond		DO Conc.	6.87 mg/L
Salinity	30.58 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light *(e.g. A/H, B/L)*

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Light Biofouling Faces clean. Wipers OK

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: ULB080620

Datasonde Maintenance

Date of Calibration: 8/6/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	17K103252	DO	16M101435
pH	17L100007	Conductivity	17E104490
Turbidity	16J100303	Chlorophyll	16M101056

Comments: W/pm 17F102838 200M 16M100181

Pre/Post Deployment Calibration: (turn on pH mV and DO Chg in Report menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment	
%aDO (or 100% sat)		100.9	100.6	____	100.1	____ %	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)		764.4 mmHg	100.6		759. mmHg	99.9	DO gain (0.8-1.7)	1.02
Baro. Pres. (Depth Calib)		764 mmHg			766.2 mmHg		DO warm up test (hi lo)	
Depth	____ m	0.13 m	0.06	____	0.082	____ offset	Cell const (4.6-5.45)	0.47
SpCond	____ mS/cm	50.1 mS/cm	50 mS/cm	____	49.63 mS/cm	0.084	pH 7 (±50 mV)	-6.31
pH 7	____	7.10	7	____	7.03		pH 10 (-180 to -50 mV)	-175.43
pH 10	____	9.97	10	____	10.04		pH 4 (+180 to +50 mV)	
pH 4	____			____			Calculated pH slope	168.63
Turb	____ NTU	-0.0 NTU	0 NTU	____	0.1 NTU		Post-Deployment	
Turb	____ NTU	125.2 NTU	124 NTU	____	123.4 NTU		DO chrg (range 25-75)	____
Rhodamine WT Temp	____ °C	____	____	____	____		DO warm up test (hi lo)	
Chl 0.0	____ ug/L	____ ug/L	____ ug/L	____	____ ug/L		pH 7 (±50 mV)	-8.5
Chl ____	____ ug/L	____ ug/L	____ ug/L	____	____ ug/L	____ ug/L	pH 10 (-180 to -50 mV)	-176.9
							pH 4 (+180 to +50 mV)	
Battery voltage		6.1 V (subtract 2nd point with >0.2V)			5.1 V (subtract 2nd point)		Calculated pH slope	168.4

Temp 23.4 23.3

Programming

Interval ____ min Start date ____ mm/dd/yyyy Start time (military) ____ hh:mm

Duration ____ days Sonde file name ____ Battery life ____ days

Free memory ____ days Set clock (status) ____ Free bytes (status) ____ %

Parameters recorded: _____

Comments - Pre: Did not cal BGA

Comments - Post: SpC low (Cal std level may have been low)

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: ULB

Deployment Information

Date Deployed: 8/6/2020 mm/dd/yyyy Time: 1340 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	21.1 °C	DO Percent	97.7 %
Sp Cond	____ mS/cm	DO Conc	6.83 mg/L
Salinity	30.58 ppt	Other	____

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: ____ Duration: ____ Maintenance: ____

Comments _____

Retrieval Information

Date Retrieved: 8/28/2020 mm/dd/yyyy Time: 1130 hh:mm (24hr) White Towel: yes

Technician(s): J.H. Sonde ID #: ____

Field Data:

Water Temp	19.7 °C	DO Percent	93.4 %
Sp Cond	____ mS/cm	DO Conc	7.10 mg/L
Salinity	31.31 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde/Guard	____	External Screen	____
Temp/Cond	____	Dissolved Oxygen	____
pH	____	Turbidity	____

Comments Matthew Bilodeau Sonde/sensors clean Brush parked

File Retrieval

Sonde Filename: ____ Print Graph: ____ Probe Malfunction: ____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: ULB08282020

Datasonde Maintenance

Date of Calibration: 8/26/20 mm dd yyyy Technician(s): LM

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	14A100676	DO	16M101438
pH	16M103216	Conductivity	17E101366
Turbidity	16M101481	Chlorophyll	16M101054

Comments: New pH to 20E100618 fDOM 16L103566
Wiper 16M101303

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menus)

Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment	
%DO = 100% sat	100.8	99.8		102.0		DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	758.1 mm Hg	99.8		774.7 mm Hg	101.9 (Not for Calibration)	DO gain (0.8-1.7)	1.01
Baro. Pres. (Depth Calib)	751.0 (Not for Calibration)			774.7 (Not for Calibration)		DO warm up test (Pass)	
Depth	-0.23 offset	-0.123		0.20 offset		Cell const (4.6-5.45)	0.47
SpCond	50.43 mS/cm	50 mS/cm		49.60 mS/cm	0.2	pH 7 (0 +/- 50 mV)	-9.8
pH 7	6.56	7		6.97		pH 10 (-180 +/- 50 mV)	-181.38
pH 10	9.56	10		10.05		pH 4 (+180 +/- 50 mV)	
pH 4						Calculated pH slope	171.59
Turb	-0.05 NTU	0 NTU		0.10 NTU		Sensor Diagnostics: Post-Deployment	
Turb	123.4 NTU	124 NTU		NTU		DO chrg (range 25-75)	
Rhodamine WT Temp	°C			°C		DO warm up test (Pass)	
Chl a 0.0	ug/L	ug/L		ug/L		pH 7 (0 +/- 50 mV)	-8.2
Chl a	ug/L	ug/L		ug/L	ug/L	pH 10 (-180 +/- 50 mV)	-185.0
						pH 4 (+180 +/- 50 mV)	
Battery voltage	5.3 V (calibrated, typical 6.5V)			5.0 V (calibrated, typical)		Calculated pH slope	176.8

Temp 22.4 22.48

Programming

Interval	min	Start date	mm dd yyyy	Start time	hh:mm
Duration	days	Sonde file name		Battery life	days
Free memory	bytes	Set clock (status)		Free bytes (status)	k

Parameters recorded: Wiper 1.28

Comments - Pre: _____

Comments - Post: fDOM data all negative - should have cal'd probe

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: ULB

Deployment Information

Date Deployed: 8/28/20 mm dd yyyy Time: 1335 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	19.7 °C	DO Percent	93.4 %
Sp Cond	mS/cm	DO Conc.	7.10 mg/L
Salinity	31.21 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: Duration: *Maintenance:

Comments _____

Retrieval Information

13:45 S/A

Date Retrieved: 9/21/2020 mm/dd/yyyy Time: [illegible] hh:mm (24hr) White Towel: yes

Technician(s): S. H. Sonde ID #: _____

Field Data:

Water Temp	15.8 °C	DO Percent	96.7 %
Sp Cond	mS/cm	DO Conc.	7.64 mg/L
Salinity	31.15 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Medium Biofouling crabs in guard

File Retrieval

Sonde Filename: Print Graph: Probe Malfunction:

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: ULB092120

Datasonde Maintenance

Date of Calibration: 9/21/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	13C100183	DO	14G101670
pH	16M103220	Conductivity	16M100102
Turbidity	16M101849	Chlorophyll	16M101055
Comments: Wiper 14A100008		fDOM	16M100187

Pre/Post Deployment Calibration: (turn on pH mV and DO Chg in Report menu)

Pre-Deployment				Post-Deployment		Sensor Diagnostics
Standards	Before Cal	Calibrated	Error			Pre-Deployment
%DO @ 100% Sat	102.4	102.2		100.1	%	DO chrg (range 25-75)
Baro. Pres. (DO Calib)	776.9	102.2		761	100.1	DO gain (0.8-1.2) 1.00
Baro. Pres. (Depth Calib)	776.9			761		DO warm up test (< 30)
Depth	0.48	0.23		0.006		Cell const (4.6-5.45) 0.47
SpCond	49.82	50		50.24	0.014	pH 7 (-1 to +50 mV) -13.94
pH 7	7.01	7		6.99		pH 10 (-145 to +50 mV) -196.9
pH 10	10.12	10		10.0		pH 4 (+145 to +50 mV)
pH 4				0.5		Calculated pH slope 178.3
Turb	-0.04	0		127.01		Post-Deployment
Turb	123.64	124				DO chrg (range 25-75)
Rhodamine WT Temp						DO warm up test (< 30)
Chl- 0.0						pH 7 (-1 to +50 mV -13.1
Chl-						pH 10 (-145 to +50 mV -189.9
						pH 4 (+145 to +50 mV
Battery Voltage	5.0			4.9		Calculated pH slope 176.8
Temp	24.6	24.53				

Programming

Interval _____ Start date _____ Start time _____

Duration _____ Sonde file name _____ Battery life _____

Free memory _____ Set clock (status) _____ Free bytes (status) _____

Parameters recorded: _____

Comments - Pre: Uncal'd SpC
DO cap 3 yrs old

Comments - Post: _____

4

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: ULB

Deployment Information

Date Deployed: 9/21/20 mm/dd/yyyy Time: 1350 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	15.8 °C	DO Percent	96.7 %
Sp Cond		DO Conc.	7.94 mg/L
Salinity	31.15 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 10/15/20 mm/dd/yyyy Time: 1105 hh:mm (24hr) White Towel: yes

Technician(s): CM TG Sonde ID #: _____

Field Data:

Water Temp	13.1 °C	DO Percent	94.4 %
Sp Cond		DO Conc.	8.15 mg/L
Salinity	31.39 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A.H. B.L)

Sonde/Guard		External Screen	
Temp Cond		Dissolved Oxygen	
pH		* Turbidity	

Comments Overlap 1100
Very light fouling. Brush fell off.

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: ULB101520

Datasonde Maintenance

Date of Calibration: 10/14/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	14A100674	DO	17F102914
pH	14E100809	Conductivity	16M100100
Turbidity	17F103581	Chlorophyll	16M100740

Comments: Wiper 16M101304 ADOM 16M101490

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment 11/13/20		Sensor Diagnostics: Pre-Deployment	
%DO / 100% sat		99.7	99.7		99.7		DO chrg (range 25-75)	
Baro. Pres. (DO Calib)		757.9	99.7		761.4	100.2	DO gain (0.8-1.7)	1.06
Baro. Pres. (Depth Calib)		757.9			761.4		DO warm up test (0.0)	
Depth		-0.14	-0.029		0.038		Cell const (4.6-5.45)	0.47
SpCond		49.70	50		49.96	0.019	pH 7 (0 +/- 50 mV)	-38.06
pH 7		7.05	7		8.18		pH 10 (-148 +/- 50 mV)	-213.81
pH 10		10.07	10		10.12		pH 4 (+118 +/- 50 mV)	
pH 4							Calculated pH slope	175.75
Turb		0.08	0		0.03		Post-Deployment	
Turb		124.09	124		123.9		DO chrg (range 25-75)	
Rhodamine WT Temp							DO warm up test (0.0)	
Chl a 0.0							pH 7 (0 +/- 50 mV)	-109.7
Chl a.u.							pH 10 (-148 +/- 50 mV)	-368.8
							pH 4 (+118 +/- 50 mV)	
Battery voltage		6.2			5.0		Calculated pH slope	161.1
Temp		23.6	23.55				Programming	

Interval: Wiper 1.23 Start date: _____ Start time: _____

Duration: _____ Sonde file name: _____ Battery life: _____

Free memory: _____ Set clock (station): _____ Free bytes (station): _____

Parameters recorded: _____

Comments - Pre: DO cap 3 yrs old

Comments - Post: Wiper brush fell off. Faces look OK

pH 7 out of range, Slope still in range

10

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: ULB

Deployment Information

Date Deployed: 10/15/20 mm/dd/yyyy Time: 1110 hh:mm (24hr) White Towel: yes

Technician(s): RM, TG Sonde ID #: _____

Field Data:

Water Temp	13.1 °C	DO Percent	94.4 %
Sp Cond	____ mS/cm	DO Conc.	8.15 mg/L
Salinity	31.39 ppt	Other	____

Comments: Overlap 11.00

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments: _____

Retrieval Information

Date Retrieved: 11/13/20 mm/dd/yyyy Time: 1330 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	11.1 °C	DO Percent	95.5 %
Sp Cond	____ mS/cm	DO Conc.	8.74 mg/L
Salinity	29.22 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=spoges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Overlap 1315

Brush fell off

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments: _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: ULB111220

Datasonde Maintenance

Date of Calibration: 11/12/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	14A100675	DO	19A100090
pH	EA101760	Conductivity	16M100099
Turbidity	13M102200	Chlorophyll	16M101053

Comments: Wiper 19A100043 ADCP 16E103564

Pre/Post Deployment Calibration: (turn on pH mV and DO Chg in Report menu)

Pre-Deployment				Post-Deployment		Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error			Pre-Deployment	
*aDO = 100% sat	100.4	100.2	____	98.8	____ %	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	761.2	100.2	____	753.7	99.2	DO gain (0.4-1.7)	1.04
Baro. Pres. (Depth Calib)	761.2	761.2	____	753.7	____ mmHg	DO warm up test (ok)	
Depth ____ mod	-0.05	0.016	____	0.035	____ mod	Cell const (4.6-5.4)	6.47
SpCond ____ mS/cm	49.97	50	____	49.85	-0.086	pH 7 (-15 - +15 mV)	-39.34
pH 7 ____	7.15	7	____	7.14		pH 10 (-15 - +15 mV)	-210.1
pH 10 ____	10.07	10	____	10.08		pH 4 (-15 - +15 mV)	
pH 4 ____			____			Calculated pH slope	170.84
Turb 0 NTU	-0.02	0	____	0.03	NTU	Post-Deployment	
Turb 124 NTU	122.82	124	____	125.09		DO chrg (range 25-75)	
Rhodamine WT Temp ____ °C						DO warm up test (ok)	
Cond ____ mS/cm			____			pH 7 (-15 - +15 mV)	
Cond ____ mS/cm			____		____ mS/cm	pH 10 (-15 - +15 mV)	-216.2
						pH 4 (-15 - +15 mV)	
Battery Voltage	6.2			5.2		Calculated pH slope	
Temp	22.6	22.54					

Programming

Interval: ____ min Start date: ____ Start time: ____ hh:mm (24hr)

Duration: ____ days Sonde file name: ____ Battery life: ____ days

Troubleshooting: ____ Set clock to date/time: ____ Free bytes available: ____

Parameters recorded: _____

Comments - Pre: SpC slow to stabilize

Comments - Post: pH needs warm up

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: ULB

Deployment Information

Date Deployed: 11/12/20 mm/dd/yyyy Time: 13:30 hh:mm (24hr) White Towel: yes

Technician(s): LM Sonde ID #: _____

Field Data:

Water Temp	11.1 °C	DO Percent	95.3 %
Sp Cond	____ mS/cm	DO Conc	8.74 mg/L
Salinity	29.20 ppt	Other	____

Comments: Overlap 1315

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: ____ Duration: ____ Maintenance: ____

Comments _____

Retrieval Information

Date Retrieved: 12/9/20 mm/dd/yyyy Time: 1255 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	3.2 °C	DO Percent	93.2 %
Sp Cond	____ mS/cm	DO Conc	11.03 mg/L
Salinity	18.17 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A:H, B:L)

Sonde/Guard	____	External Screen	____
Temp/Cond	____	Dissolved Oxygen	____
pH	____	Turbidity	____

Comments: Sonde clean. Wipers OK.

File Retrieval

Sonde Filename: ____ Print Graph: ____ Probe Malfunction: ____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: ____ Station Name: ____ CDMO Raw File Name: UP042320

Datasonde and Probe Identification Numbers

	Sonde Code	Serial Number	Model Number
Datasonde			
Vented		Model Number	
Nickname			

16M102174

	Serial Number	Model Number
pH	17E101760	
RP DO		
ODO	16M101434	
Turbidity	16M101483	
Conductivity	16J100640	
Chlorophyll	17E102012	
EXO Wiper	16J100191	

Datasonde Maintenance

Date of Calibration: ____ mm/dd/yyyy Technician(s): LM

	TURB	ODO	CHL		TURB	ODO	CHL
Wipers Replaced				Wiper parks 180° from optics			
Batteries Replaced				DO/ODO membrane replaced			
Format Flash Disk				Membrane integrity test			

Comments: FDOM 16M100183.

Pre/Post Deployment Calibration

Pre-Deployment				Post-Deployment	
Standards	Before Cal	Calibrated	Error		
Temp 24.3 °C	24.50			Check Date	
RP % DO @ 100% sat					
BP @ cal (Rapid Pulse)					
Optical %DO @ 100% sat	97.40	98.60		102.6	
BP @ Cal (Optical)	749.2			778	101.8
Baro Pres (Depth Calib)	760.5	0.00		774.6	
Depth	0.10	0.00		0.187	0.19
Station Offset					
Level offset					
SpCond mS/cm	50.00	50		49.93	
ph 7	7.23	7		6.92	
ph 10	10.03	10		10.05	
ph 4					
Turb NTU FNU	0.06	0		0.3	
Turb NTU FNU	122.37	124		123.9	
Rhodamine WT Temp				°C	
Chl (0) 0.0 ug/L					
Chl (118) 118.5 ug/L					
Battery voltage	6.2 V	(remove ext power/refill)		4.8 V	(remove ext power)

Sensor Diagnostics	
Pre-Deployment	
RP DO chrg (range 25-75)	
RP DO gain (0.7-1.4)	
Optical DO gain (6600 0.7-1.4, EXO 0.87-1.25)	1.12
RP DO warm up test (Pass/fail)	
Cell const (6600 4.6-5.45, EXO 5.05-5.95, WPD EXO 0.419-0.519)	0.47
pH 7 (0 +/- 50 mV)	-22.09
pH 10 (-180 +/- 50 mV)	-197.05
pH 4 (+180 +/- 50 mV)	
Calculated pH slope (<155 is suspect)	169.56
(A ? will result in negative slope)	
Post-Deployment	
RP DO chrg (range 25-75)	
RP DO warm up test (Pass/fail)	
pH 7 (0 +/- 50 mV)	-174.2
pH 10 (-180 +/- 50 mV)	-195.5
pH 4 (+180 +/- 50 mV)	
Calculated pH Slope (<155 is suspect)	178.3

Programming

Interval	min	Start date	mm/dd/yyyy	Start time (STD)	hh:mm (24hr)
Duration	days	sonde file name		Battery life	days
Free memory	days	Set clock (status)	Y or N	Free memory (status)	bytes/kb/mb
Parameters recorded					
Temp		Sp Cond		Salinity	
DO % sat		DO Conc		Depth/Level	
pH		Turbidity		Chlorophyll	
		pH mV		Battery Voltage	

Comments-Pre: pH 7 a little low

Comments-Post: DO a little high

NERRS SWMP Water Quality Field Log

UP042320

Reserve: Great Bay Station Name: ____ File Name: ____

Deployment Information

Date Deployed: 4/23/20 mm/dd/yyyy Time: ____ hh:mm (24hr) White Towel: yes

Technician(s): ____ Sonde ID #: ____

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc	mg/L
Salinity	ppt	Other	

Comments: 1st deployment

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: ____ Duration: ____ Maintenance: ____

Comments: ____

Retrieval Information

Date Retrieved: 5/20/2020 mm/dd/yyyy Time: 10:42 EST hh:mm (24hr) White Towel: yes

Technician(s): LM + J.H. Sonde ID #: ____

Field Data:

Water Temp	12.9 °C	DO Percent	101.7 %
Sp Cond	mS/cm	DO Conc	9.10 mg/L
Salinity	22.90 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	L	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: mod. kelp MUA on 40s at Sandy, minimal bio fouling present, wiper on

File Retrieval

Sonde Filename: ____ Print Graph: ____ Probe Malfunction: ____

Comments: ____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: UP052020

Datasonde Maintenance

Date of Calibration: 5/15/20 mm/dd/yyyy Technician(s): ARP, LM

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	16J100911	DO	17F102902 Retired Aug 2020 ✓
pH	16M103216	Conductivity	16M100101
Turbidity	16M101481	Chlorophyll	16M101056
Comments	ADOM 16M100181		Wiper 16M101383

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment	Standards	Before Cal	Calibrated	Error	Post-Deployment 6/23/20		Sensor Diagnostics: Pre-Deployment	
Temp		22.9, 22.98						
%DO @ 100% sat		99.7 %	100.0 %		98.9 %	%	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)		760.1 mm Hg			754.0 mm Hg	99.2 (760.0 for vented models)	DO gain (0.8-1.7)	1.04
Baro. Pres. (Depth Calib)		760.0 mm Hg	(760.0 for vented models)		754.0 mm Hg		DO warm up test (hr/lo)	
Depth	0 offset	0.03 m	-0.00 m		-0.077 m	offset	Cell const (4.6-5.45)	0.47
SpCond	50.0 mS/cm	49.99 mS/cm	50.00 mS/cm		49.89 mS/cm	-0.082	pH 7 (0 +/- 50 mV)	-16
pH 7	7	7.10	7.00		7.16		pH 10 (-180 +/- 50 mV)	-196
pH 10	10	10.16	10.00		10.07		pH 4 (+180 +/- 50 mV)	188
pH 4	X						Calculated pH slope	194
Turb	0 NTU	-0.19 NTU	0.00 NTU		0.1 NTU		Post-Deployment: DO chrg (range 25-75)	
Turb	124 NTU	122.9 NTU	124.0 NTU		123.4		DO warm up test (hr/lo)	
Rhodamine WT Temp		°C			°C		pH 7 (0 +/- 50 mV)	-25.8
Chl (0)	0.0 ug/L	ug/L	ug/L		ug/L		pH 10 (-180 +/- 50 mV)	-199.9
Chl (100)	ug/L	ug/L	ug/L		ug/L	ug/L	pH 4 (+180 +/- 50 mV)	
Battery voltage		6.1 V (internal pwr: 4.81, 12.28)			V (internal pwr:)		Calculated pH slope	174.1

Wiper 1.25

Programming

Interval		Start date	mm/dd/yyyy	Start time	hh:mm:ss
Duration	days	Sonde file name		Battery life	days
Free memory	days	Set clock (status)		Free bytes (status)	K

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: Brush very slippery

Had to use rinse to post cal SPC

NERRS SWMP Water Quality Field Log

UP

Reserve: Great Bay Station Name: _____ File Name: _____

Deployment Information

Date Deployed: 5/20/2018 mm/dd/yyyy Time: 10:50 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	17.9 °C	DO Percent	101.7 %
Sp Cond	mS/cm	DO Conc	9.30 mg/L
Salinity	32.90 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: 5/27/20 Duration: ~ Maintenance: _____

Comments Moved sonde slightly deeper 1050

Retrieval Information

Date Retrieved: 6/23/20 mm/dd/yyyy Time: 10:30 hh:mm (24hr) White Towel: yes

Technician(s): J. M. Sonde ID #: _____

Field Data:

Water Temp	22.1 °C	DO Percent	100.2 %
Sp Cond	mS/cm	DO Conc	7.47 mg/L
Salinity	27.11 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	M	External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments medium fouling

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments MDO 10144 SN instrument On new Conf is Bad. taken about the hour

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: UPR062220

Datasonde Maintenance

Date of Calibration: 6/22/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	16M102178	DO	17L100138
pH	14G101499	Conductivity	16J100644
Turbidity	13M102202	Chlorophyll	16M100741

Comments: Wiper 13 fDOM 17F101081

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Error	Post-Deployment		Sensor Diagnostics
						Pre-Deployment
Temp 23.81 °C		23.82		100.9 %	____ %	DO chrg (range 25-75)
aDO 100% Sat	100.3 %	100.1 %		767.6 mb	101.0 mb	DO gain (0.8-1.7) 1.07
Baro. Pres. (DO Calib)	760.9 mb	100.1 (760.9 for tested units)		767.6 mb	(760.9 for units)	DO warm up test (hr/lo)
Baro. Pres. (Depth Calib)	760.9 mb			0.106	____ offset	Cell const (4.6-5.45) 0.47
Depth ____ offset	0.071	0.012		50.45 mS/cm	0.103	pH 7 (0 +/- 50 mV) -7.26
SpCond ____ mS/cm	49.83 mS/cm	50 mS/cm		7.05		pH 10 (-180 +/- 50 mV) -182.8
pH 7 ____	7.08	7		10.02		pH 4 (+180 +/- 50 mV)
pH 10 ____	9.99	10				Calculated pH slope 175.54
pH 4 ____						**Post-Deployment**
Turb ____ NTU	0.01 NTU	0 NTU		0.1 NTU		DO chrg (range 25-75) ____
Turb ____ NTU	125.11 NTU	124 NTU		124.5		DO warm up test (hr lo)
Rhodamine WT Temp		°C			°C	pH 7 (0 +/- 50 mV) -10.0
Chl (0.0) ug/L		ug/L	ug/L		ug/L	pH 10 (-180 +/- 50 mV) -183.0
Chl (###) ____ ug/L		ug/L	ug/L		ug/L ____ ug/L	pH 4 (+180 +/- 50 mV)
Battery Voltage	5.2 V (transducer power when tested)			4.9 V (transducer power)		Calculated pH slope 173.0

Programming

Interval	____ min	Start date	____ mm/dd/yyyy	Start time (optional)	____ hh:mm:ss
Duration	____ days	Sonde file name	____	Battery life	____ days
Free memory	____ days	Set clock (status)	____	Free bytes (status)	____ k

Parameters recorded: _____

Comments - Pre: DO Cap 25 yrs old
Turbidity drifting & wiper unstable @ 124
Did not cal chl. RFU on EXA-AC

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Green Bay Station Name: _____ File Name: UPR

Deployment Information

Date Deployed: 6/23/20 mm/dd/yyyy Time: 1040 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	22.1 °C	DO Percent	100.2 %
Sp Cond	____ mS/cm	DO Conc	7.47 mg/L
Salinity	27.11 ppt	Other	____

Comments: _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments: _____

Retrieval Information

Date Retrieved: 7/15/20 mm/dd/yyyy Time: 1120 hh:mm (24hr) White Towel: yes

Technician(s): LM, AD Sonde ID #: _____

Field Data:

Water Temp	22.3 °C	DO Percent	95.6 %
Sp Cond	____ mS/cm	DO Conc	7.06 mg/L
Salinity	24.06 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Overlap 1115
Medusa hydroid / algal fouling on guard mesh
Sensors clean
Wiper parked but brush splayed.

File Retrieval

Sonde Filename: _____ Print Graph: • Probe Malfunction: _____

Comments: _____

1125 deploy

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: UPR071420

Datasonde Maintenance

Date of Calibration: 7/14/20 mm/dd/yyyy Technician(s): LM

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	14A100674	DO	17F102914
pH	14E102909	Conductivity	16M100100
Turbidity	17F103581	Chlorophyll	16M100740
Comments	W. pos 16M101304	fDOM	16M101490

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment	
%DO @ 100% sat	100 %	100.1 %			99.1 %	____ %	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	760.5 mm Hg				757.9 mm Hg	99.7 % (Std @ 0 in vented)	DO gain (0.8-1.7)	1.06
Baro. Pres. (Depth Calib)	760.6 mm Hg	(Std 0 for vented sonde)			757.9 mm Hg		DO warm up test (hi/lo)	
Depth ____ offset	-0.03 m	0.008			-0.026	____ offset	Cell const (4.6-5.45)	0.47
SpCond ____ mS/cm	50.27 mS/cm	50 mS/cm			49.69 mS/cm	-0.029	pH 7 (0 +/- 50 mV)	-26.5
pH 7 ____	6.84	7			7.10		pH 10 (-180 +/- 50 mV)	-199.19
pH 10 ____	9.88	10			10.02		pH 4 (+180 +/- 50 mV)	
pH 4 ____							Calculated pH slope	172.68
Turb ____ NTU	0.06 NTU	-0.0 NTU			-0.03		**Post-Deployment**	
Turb ____ NTU	125.18 NTU	124 NTU			123.9		DO chrg (range 25-75)	
Rhodamine WT Temp		°C				°C	DO warm up test (hi/lo)	
Chl @0 0.0	ug/L	____ ug/L	____ ug/L		____ ug/L		pH 7 (0 +/- 50 mV)	-32.1
Chl @10	ug/L	____ ug/L	____ ug/L		____ ug/L	____ ug/L	pH 10 (-180 +/- 50 mV)	-202.2
							pH 4 (+180 +/- 50 mV)	
Battery voltage	5.2 V (between ext. power 4.50-6.00)				5.0 V (between ext. power)		Calculated pH slope	170.1

Temp 22.9 22.95

Programming

Interval	____ min	Start date	____ mm/dd/yyyy	Start time (military)	____ hh:mm:ss
Duration	____ days	Sonde file name	____	Battery life	____ days
Free memory	____ days	Set clock (status)	____	Free bytes (status)	____ K

Parameters recorded: _____

Comments - Pre: Did not cal ch RFU

Comments - Post: SpC low

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: UPR

Deployment Information

Date Deployed: 7/15/20 mm/dd/yyyy Time: 1125 hh:mm (24hr) White Towel: yes

Technician(s): LM, AP Sonde ID #: _____

Field Data:

Water Temp	22.3 °C	DO Percent	93.6 %
Sp Cond	____ mS/cm	DO Conc	7.060 mg/L
Salinity	24.00 ppt	Other	____

Comments: Overlap 1115
No mesh on guard

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 8/11/2020 mm/dd/yyyy Time: 11:32 hh:mm (24hr) White Towel: yes

Technician(s): J.H. Sonde ID #: _____

Field Data:

Water Temp	24.7 °C	DO Percent	104.1 %
Sp Cond	____ mS/cm	DO Conc	7.41 mg/L
Salinity	27.3 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Moderate Biofouling Algae/hydroids on tape on sensor bodies Faces clear, Brush

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments very splayed.

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: UPR081120

Datasonde Maintenance

Date of Calibration: 8/10/20 mm dd yyyy Technician(s): LM

Turbidity wiper replaced	____	Wiper parks 180° from optics	____
Chlorophyll wiper replaced	____	Wiper parks 180° from optics	____
Batteries replaced	____	DO membrane replaced	____
Format flash disk	____	Membrane integrity test	____

Datasonde and Probe Identification Numbers

Datasonde	16M102177	DO	16M101431
pH	16ST101303	Conductivity	16ST100643
Turbidity	19K105377	Chlorophyll	16M101052 ✓

Comments wl, pH 16M101301 FDOM 16M101086

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment				Post-Deployment			Sensor Diagnostics	
Standards	Before Cal	Calibrated	Error				Pre-Deployment	
%DO @ 100% sat	99.5 %	99.9 %	____	99.7 %	____ %		DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	759.4 mmHg	99.9 mmHg		755.4 mmHg	99.4 mmHg		DO gain (0.8-1.7)	1.09
Baro. Pres. (Depth Calib)	759.4 mmHg	(Check if within 5 mmHg)		755.4 mmHg	(Check if within 5 mmHg)		DO warm up test (Pass/Fail)	
Depth ____ mHO	-0.09	-0.013	____	-0.065	____ mHO		Cell const (4.6-5.45)	0.47
SpCond ____ mS/cm	49.93 mS/cm	50 mS/cm	____	48.74 mS/cm	-0.063		pH 7 (0 +- 50 mV)	
pH 7 ____	7	7	____	7.01			pH 10 (-159 +- 50 mV)	-28.88
pH 10 ____	10.02	10	____	10.05			pH 4 (+180 +- 50 mV)	196.75
pH 4 ____			____				Calculated pH1 slope	167.87
Turb ____ NTU	-0.07 NTU	0 NTU	____	0.15 NTU			Post-Deployment	
Turb ____ NTU	124.76	124.03	____	123.5			DO chrg (range 25-75)	____
Rhodamine WT Temp	____ °C			____ °C			DO warm up test (Pass/Fail)	
Chl (0.0)	____ ug/L	____ ug/L	____	____ ug/L			pH 7 (0 +- 50 mV)	-29.3
Chl ____ ug/L	____ ug/L	____ ug/L	____	____ ug/L	____ ug/L		pH 10 (-180 +- 50 mV)	197.6
							pH 4 (+180 +- 50 mV)	
Battery Voltage	6.1 V (Internal power supply voltage)			5.2 V (Internal power supply voltage)			Calculated pH1 slope	168.3
Temp	25.3	25.45						

Programming

Interval	____ min	Start date	____ mm/dd/yyyy	Start time (hhmm)	____ hhmm
Duration	____ days	Sonde file name	____	Battery life	____ days
Free memory	____ MB	Set clock (status)	____	Free bytes (status)	____ %

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: SpC low

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: UPR

Deployment Information

Date Deployed: 8/11/20 mm/dd/yyyy Time: 1140 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	24.1 °C	DO Percent	104.1 %
Sp Cond	____ mS/cm	DO Conc	7.41 mg/L
Salinity	27.33 ppt	Other	____

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: ____ Duration: ____ Maintenance: ____

Comments _____

Retrieval Information

Date Retrieved: 9/7/2020 mm/dd/yyyy Time: ~~1200~~ 12:15 Std hh:mm (24hr) White Towel: yes

Technician(s): J. P. Sonde ID #: _____

Field Data:

Water Temp	17.9 °C	DO Percent	87.7 %
Sp Cond	____ mS/cm	DO Conc	6.56 mg/L
Salinity	30.04 ppt	Other	____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard	____	External Screen	____
Temp/Cond	____	Dissolved Oxygen	____
pH	____	Turbidity	____

Comments Matthew Biddle Faces clean, Wiper parked.

File Retrieval

Sonde Filename: ____ Print Graph: ____ Probe Malfunction: ____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: UPR090320

Datasonde Maintenance

Date of Calibration: 9/2/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced		Wiper parks 180° from optics	
Chlorophyll wiper replaced		Wiper parks 180° from optics	
Batteries replaced		DO membrane replaced	
Format flash disk		Membrane integrity test	

Datasonde and Probe Identification Numbers

Datasonde	16T100910	DO	16M101436
pH	16M103217	Conductivity	16T100642
Turbidity	16T100302	Chlorophyll	16M100743

Comments: New pH 4.0 20E100618 from 16M100185
W.pad 14T101317

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Standards	Pre-Deployment: Before Cal	Pre-Deployment: Calibrated	Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment	
%dO = 100% sat	99.8	99.8		99.5	%	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	758.4	99.8		757.6	99.7	DO gain (0.8-1.7)	1.05
Baro. Pres. (Depth Calib)	758.4			757.6		DO warm up test (hi lo)	
Depth	-0.10	-0.022		-0.032		Cell const (4.6-5.45)	0.47
SpCond	49.43	50		49.90	-0.033	pH 7 (0 +- 50 mV)	-11.88
pH 7	6.59	7		6.96		pH 10 (-180 +- 50 mV)	181.71
pH 10	9.63	10		10.07		pH 4 (-180 +- 50 mV)	
pH 4						Calculated pH slope	169.83
Turb	0.05	0		0.3		Post-Deployment	
Turb	123.63	124		123.7		DO chrg (range 25-75)	
Rhodamine WT Temp						DO warm up test (hi lo)	
Chl (0.0)						pH 7 (0 +- 50 mV)	-9.6
Chl						pH 10 (-180 +- 50 mV)	185.7
						pH 4 (-180 +- 50 mV)	
Battery voltage	5.2			4.8		Calculated pH slope	Ka.l
Temp	20.7	22.69					

Programming

Interval		Start date		Start time	
Duration		Sonde file name		Battery life	
Free memory		Set clock (status)		Free bytes (status)	

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: U UPR

9/3/20

Deployment Information

Date Deployed: _____ mm/dd/yyyy Time: 1025 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	17.9 °C	DO Percent	83.2 %
Sp Cond	mS/cm	DO Conc	6.50 mg/L
Salinity	30.94 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

1430

Date Retrieved: 9/29/2020 mm/dd/yyyy Time: 2:30 hh:mm (24hr) White Towel: yes

Technician(s): J. H. Sonde ID #: _____

Field Data:

Water Temp	18.8 °C	DO Percent	100.1 %
Sp Cond	mS/cm	DO Conc	7.28 mg/L
Salinity	30.50 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A/H, B/L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Light Briefly ~~light algae Barnacles wiper parked.~~

File Retrieval

Wiper stuck in CT probe

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments Brush very splayed. Partially over turb face.

Light fouling on rest of sensors. Faces are clean. A lot of organic matter stuck in CT probe.

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: UPR092920

(File name may be 092320)

Datasonde Maintenance

Date of Calibration: 9/28/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	16M102178	DO	17L100138
pH	14G101499	Conductivity	16J100644
Turbidity	13M102300	Chlorophyll	16M100741

Comments: Wiper 17L100240 fDOM 17F101081

Pre/Post Deployment Calibration: (Turn on pH 10 and DO Chg in Report menu)

	Pre-Deployment Standards	Pre-Deployment Before Cal	Pre-Deployment Calibrated	Pre-Deployment Error	Post-Deployment	Post-Deployment	Sensor Diagnostics Pre-Deployment	
%DO @ 100% sat		100.2	100.1		100.9		DO chrg (range 25-75)	
Baro. Pres. (DO Calib)		760.5			768.5	101.1	DO gain (0.8-1.7)	1.06
Baro. Pres. (Depth Calib)		760.5	100.1		768.5		DO warm up test (Y/N)	
Depth		0.02	0.007		0.113		Cell const (4.6-5.45)	0.47
SpCond		49.65	50		50.10	0.116	pH 7 (0 - ±50 mV)	-13.18
pH 7		6.8	7		6.99		pH 10 (-150 - -50 mV)	-191.47
pH 10		10.02	10		9.98		pH 4 (+150 - +50 mV)	
pH 4							Calculated pH slope	178.21
Turb		-0.81	0		0.06		Post-Deployment	
Turb		122.41	124.01		123.56		DO chrg (range 25-75)	
Rhodamine WT Temp							DO warm up test (Y/N)	
Chl							pH 7 (0 - ±50 mV)	-12.6
Chl							pH 10 (-150 - -50 mV)	-187.4
							pH 4 (+150 - +50 mV)	
Battery voltage		6.1			5.2		Calculated pH slope	176.8
Temp		23.0	23.09					

Programming

Interval _____ Start date _____ Start time _____

Duration _____ Sonde file name _____ Battery life _____

Free memory _____ Set clock (status) _____ Free bytes (status) _____

Parameters recorded: _____

Comments - Pre: Watch pH Uncal'd turbidity

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: UPR

Deployment Information

Date Deployed: 9/29/20 mm/dd/yyyy Time: 1435 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	18.8 °C	DO Percent	100.4 %
Sp Cond		DO Conc.	7.78 mg/L
Salinity	30.5 ppt	Other	

Comments _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments _____

Retrieval Information

Date Retrieved: 10/27/2020 mm/dd/yyyy Time: 8:30 hh:mm (24hr) White Towel: yes

Technician(s): JH Sonde ID #: _____

Field Data:

Water Temp	12.8 °C	DO Percent	89.4 %
Sp Cond		DO Conc.	8.16 mg/L
Salinity	23.86 ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A.H. B.L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments Light Biofouling Wipers very splayed, looks like may not have been turning. Faces in W of N

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: UPR102220

Datasonde Maintenance

Date of Calibration: 10/19/20 mm dd yyyy Technician(s): _____

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	13C100183	DO	14G101670
pH	16M103220	Conductivity	16M100102
Turbidity	17E103580	Chlorophyll	16M101055

Comments: Wiper 17A100068 fDOM 16M100187

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

Pre-Deployment Standards	Before Cal	Calibrated	Error	Post-Deployment		Sensor Diagnostics: Pre-Deployment	
%DO - 100% sat	101.6	101.3	___	100	___	DO chrg (range 25-75)	
Baro. Pres. (DO Calib)	770.2	101.3		758.7	99.8	DO gain (0.8-1.7)	1.00
Baro. Pres. (Depth Calib)	762			758.7		DO warm up (25/12 hr)	
Depth	-0.18	0.029	___	-0.020	___	Cell const (4.6-5.4)	6.47
Spcond	49.98	50	___	50.06	-0.018	pH 7 (-- to -- mV)	-14.37
pH 7	7.01	7	___	7.13		pH 10 (-45 to -- mV)	191.77
pH 10	10	10	___	10.05		pH 4 (+130 to -- mV)	
pH 4						Calculated pH slope	177.41
Turb	-0.07	0	___	-0.04		Post-Deployment	
Turb	123.03	124	___	112.5		DO chrg (range 25-75)	
Rhodamine WT Temp						DO warm up test	
Chl						pH 7 (-- to -- mV)	-21.3
Chl						pH 10 (-- to -- mV)	-196.7
Battery voltage	6.2			5.3		pH 4 (+-- to -- mV)	
						Calculated pH slope	175.4
Temp	24.54	24.52					

Programming

Interval: _____ Start date: _____ Start time: _____

Duration: _____ Sonde ID name: _____ Battery life: _____

Logging: _____ Set clock status: _____ Free bytes (status): _____

Parameters recorded: DO Cap 3 yrs old

Comments - Pre: _____

Comments - Post: Turb @ 124 low

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: UPR

Deployment Information

Date Deployed: 10/22/20 mm/dd/yyyy Time: 840 hh:mm (24hr) White Towel: yes

Technician(s): TH Sonde ID #: _____

Field Data:

Water Temp	12.8 °C	DO Percent	89.4 %
Sp Cond	_____ mS/cm	DO Conc	8.40 mg/L
Salinity	23.86 ppt	Other	_____

Comments: Vial Sample

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc)

Date: _____ Duration: _____ Maintenance: _____

Comments: _____

Retrieval Information

Date Retrieved: 10/11/20 mm/dd/yyyy Time: 1450 hh:mm (24hr) White Towel: yes

Technician(s): CM Sonde ID #: _____

Field Data:

Water Temp	11.0 °C	DO Percent	102.5 %
Sp Cond	_____ mS/cm	DO Conc	10.01 mg/L
Salinity	19.36 ppt	Other	_____

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A.H, B.L)

Sonde/Guard	_____	External Screen	_____
Temp/Cond	_____	Dissolved Oxygen	_____
pH	_____	Turbidity	_____

Comments: 1445 overlap
Sonde clean, Brush OK, loose bolt still on

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments: _____

NERRS SWMP Water Quality Calibration Log

Reserve: _____ Station Name: _____ File Name: UPR111120

Datasonde Maintenance

Date of Calibration: 11/11/20 mm/dd/yyyy Technician(s): _____

Turbidity wiper replaced	_____	Wiper parks 180° from optics	_____
Chlorophyll wiper replaced	_____	Wiper parks 180° from optics	_____
Batteries replaced	_____	DO membrane replaced	_____
Format flash disk	_____	Membrane integrity test	_____

Datasonde and Probe Identification Numbers

Datasonde	16J100910	DO	16M101436
pH	16M103217	Conductivity	16J100642
Turbidity	16J100302	Chlorophyll	16M100742

Comments: Wiper 14J101317 fDOM 17F101082

Pre/Post Deployment Calibration: (turn on pH mV and DO Chrg in Report menu)

	Pre-Deployment			Post-Deployment			Sensor Diagnostics
	Standards	Before Cal	Calibrated	Error			Pre-Deployment
%DO - 100% sat		100.2	100.2		100.5		DO chrg (range 25-75)
Baro. Pres. (DO Calib)		761.7	100.2		759.8	100	DO gain (0.4-1.7) 1.04
Baro. Pres. (Depth Calib)		761.7			759.8		DO warm up test (ok)
Depth		0.16	0.023		0.003		Cell const (4.6-5.45) 0.47
Sp Cond		49.88	50		50.07	-.002	pH 7 (0 +/- 59 mV) -15.59
pH 7		7.13	7		7.05		pH 10 (-15 +/- 59 mV) -187.94
pH 10		10.05	10		9.99		pH 4 (+15 +/- 59 mV)
pH 4							Calculated pH slope 172.35
Turb 0	0	-0.1	0		0.02		Post-Deployment
Turb 124	124	123.62	124		124.30		DO chrg (range 25-75)
Rhodamine WT Temp							DO warm up test (ok)
Chl							pH 7 (0 +/- 59 mV) -187
Chl							pH 10 (-15 +/- 59 mV) -188.7
Battery voltage		6.1			5.3		pH 4 (+15 +/- 59 mV)
							Calculated pH slope 170.0
Temp	24.2	24.12					

Programming

Interval: _____ sec Start date: _____ Start time: _____

Duration: _____ min Sonde file name: _____ Battery life: _____

Free memory: _____ mb Set clock (status): _____ Free bytes (status): _____

Parameters recorded: _____

Comments - Pre: _____

Comments - Post: _____

NERRS SWMP Water Quality Field Log

Reserve: Great Bay Station Name: _____ File Name: UPR

Deployment Information

Date Deployed: 11/11/20 mm/dd/yyyy Time: 15:00 hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc.	mg/L
Salinity	ppt	Other	

Comments: _____

Infield Maintenance

(note any changes to site during deployment, sonde tube maintenance, biofouling removal, etc.)

Date: _____ Duration: _____ Maintenance: _____

Comments: _____

Retrieval Information

Date Retrieved: 12/9/20 mm/dd/yyyy Time: _____ hh:mm (24hr) White Towel: yes

Technician(s): _____ Sonde ID #: _____

Field Data:

Water Temp	°C	DO Percent	%
Sp Cond	mS/cm	DO Conc.	mg/L
Salinity	ppt	Other	

Fouling Presence: Type: A=algae, B=barnacles, C=crabs, E=eggs, F=fish, H=hydroids, S=sponges, T=tunicates, O=other, N=none
Amount: H=heavy, M=moderate, L=light (e.g. A H, B L)

Sonde/Guard		External Screen	
Temp/Cond		Dissolved Oxygen	
pH		Turbidity	

Comments: Sonde clean, Wipers OK.

File Retrieval

Sonde Filename: _____ Print Graph: _____ Probe Malfunction: _____

Comments: _____